TOWN OF MIDDLETON
DEPARTMENT OF PUBLIC WORKS

MAPLE STREET (ROUTE 62) COMPLETE STREETS PROJECT

IN THE TOWN OF
MIDDLETON
ESSEX COUNTY
THE COMMONWEALTH OF MASSACHUSETTS

INDEX

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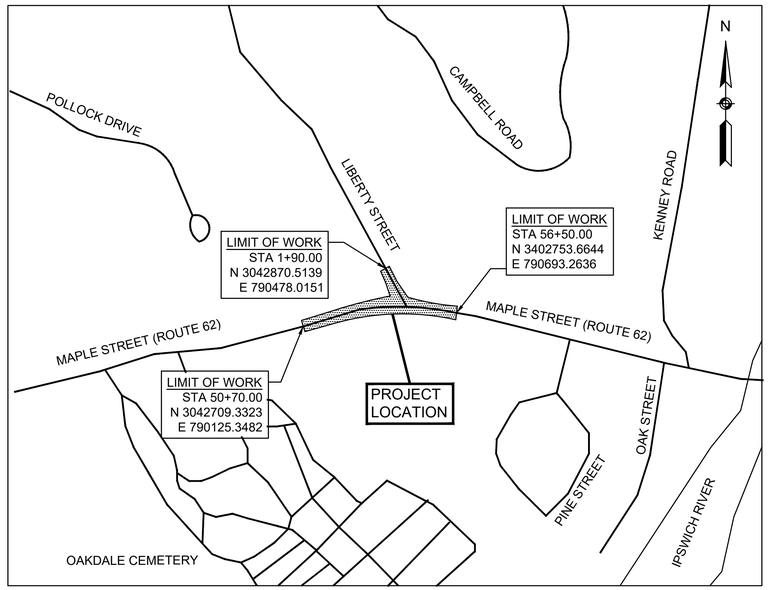

THE MASSACHUSETTS HIGHWAY DEPARTMENT STANDARD SPECIFICATIONS FOR HIGHWAYS AND BRIDGES DATED 1988, AS AMENDED, THE SUPPLEMENTAL SPECIFICATIONS DATED APRIL 1, 2019, THE 2017 CONSTRUCTION STANDARD DETAILS, THE 2015 OVERHEAD SIGNAL STRUCTURE AND FOUNDATION STANDARD DRAWINGS, MASSDOT TRAFFIC MANAGEMENT PLANS AND DETAIL DRAWINGS, THE LATEST MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES FOR STREETS AND HIGHWAYS WITH MASSACHUSETTS AMENDMENTS, THE 1990 STANDARD DRAWINGS FOR SIGNS AND SUPPORTS, THE 1968 STANDARD DRAWINGS FOR TRAFFIC SIGNALS AND HIGHWAY LIGHTING, AND THE LATEST EDITION OF THE AMERICAN STANDARD FOR NURSERY STOCK, WILL GOVERN.

CLIENT:
TOWN OF MIDDLETON
DEPARTMENT OF PUBLIC WORKS
195 NORTH MAIN STREET
MIDDLETON, MA 01949
PHONE: 978-777-0407

PROJECT:
MAPLE STREET (ROUTE 62)
COMPLETE STREETS PROJECT
MIDDLETON, MA

PREPARED BY:
WORLDTECH ENGINEERING
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WOBURN, MA 01801
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COMMONWEALTH OF MASSACHUSETTS
THOMAS F. QUINLAN
CIVIL
No. 50899
REGISTERED PROFESSIONAL ENGINEER

PROFESSIONAL CIVIL ENGINEER FOR WORLDTECH ENGINEERING, LLC

NO.	DATE	REVISION

SCALE:	NONE
DATE:	MAY 2019
WTE PROJ. NO:	18–013.01
DESIGNED BY:	KMC
CHECKED BY:	TFQ

DRAWING TITLE:
TITLE SHEET AND INDEX

SHEET NO.
1 OF 14

Filename: J:\Middleton\18-013.01 Middleton - Maple Street Complete Street Design\ACAD\18-013.01\Project Drawing Data\Plan Sheet Files\Plan Sheet DWG\18-013.01_HD(Title Sheet).dwg

GENERAL SYMBOLS

EXISTING	PROPOSED	DESCRIPTION
JB	JB	JERSEY BARRIER ON BRIDGE OR JERSEY BARRIER
CB		CATCH BASIN
		CATCH BASIN CURB INLET
FP	FP	FLAG POLE
GP	GP	GAS PUMP
MB	MB	MAIL BOX
		POST SQUARE
		POST CIRCULAR
SP		STEEL POLE
WELL	WELL	WELL
EHH	EHH	ELECTRIC HANDHOLE
		FENCE GATE POST
GG	GG	GAS GATE
BHL #	BHL #	BORING HOLE
MW #	MW #	MONITORING WELL
TP #	TP #	TEST PIT
		HYDRANT
		LIGHT POLE
CO.BD.		COUNTY BOUND
		GPS POINT
C	C	CABLE MANHOLE
D	D	DRAINAGE MANHOLE
E	E	ELECTRIC MANHOLE
G	G	GAS MANHOLE
M	M	MISC MANHOLE
S	S	SEWER MANHOLE
T	T	TELEPHONE MANHOLE
W	W	WATER MANHOLE
MHB	MHB	MASSACHUSETTS HIGHWAY BOUND
MON		MONUMENT
SB		STONE BOUND
TB		TOWN OR CITY BOUND
		TRAVERSE OR TRIANGULATION STATION
TPL or GUY	TPL or GUY	TROLLEY POLE OR GUY POLE
HTP		TRANSMISSION POLE
UFB	UFB	UTILITY POLE W/ FIREBOX
UPDL	UPDL	UTILITY POLE WITH DOUBLE LIGHT
ULT	ULT	UTILITY POLE W / 1 LIGHT
UPL	UPL	UTILITY POLE
		BUSH
SIZE & TYPE		TREE
		STUMP
		SWAMP / MARSH
WG	WG	WATER GATE
PM	PM	PARKING METER
		LIGHT POLE WITH LUMINAIRE
		OVERHEAD CABLE/WIRE
		CURBING
100 99		CONTOURS
		UNDERGROUND DRAIN PIPE (DOUBLE LINE 24 INCH AND OVER)
		UNDERGROUND ELECTRIC DUCT (DOUBLE LINE 24 INCH AND OVER)
		UNDERGROUND GAS MAIN (DOUBLE LINE 24 INCH AND OVER)
		UNDERGROUND SEWER MAIN (DOUBLE LINE 24 INCH AND OVER)
		UNDERGROUND TELEPHONE DUCT (DOUBLE LINE 24 INCH AND OVER)
		UNDERGROUND WATER MAIN (DOUBLE LINE 24 INCH AND OVER)
		BALANCE STONE WALL
		GUARD RAIL - STEEL POSTS
		GUARD RAIL - WOOD POSTS
x	x	CHAIN LINK OR METAL FENCE
		WOOD FENCE
		SEDIMENT CONTROL BARRIER
		TREE LINE OR LIMIT OF CLEARING AND GRUBBING
		SAWCUT LINE
		TOP OR BOTTOM OF SLOPE
		LIMIT OF EDGE OF PAVEMENT OR COLD PLANE AND OVERLAY
		BANK OF RIVER OR STREAM
		BORDER OF WETLAND
		100 FT WETLAND BUFFER
		200 FT RIVERFRONT BUFFER
		STATE HIGHWAY LAYOUT
		TOWN OR CITY LAYOUT
		COUNTY LAYOUT
		RAILROAD SIDELINE
		TOWN OR CITY BOUNDARY LINE
t		PROPERTY LINE OR APPROXIMATE PROPERTY LINE
		EASEMENT

PAVEMENT MARKINGS SYMBOLS

EXISTING	PROPOSED	DESCRIPTION
		PAVEMENT ARROW - WHITE
ONLY	ONLY	LEGEND "ONLY" - WHITE
	SL	STOP LINE - 12"
	CW	CROSSWALK - 12" LINES
	SWL	SOLID WHITE LINE - 6"
	SYL	SOLID YELLOW LINE - 6"
	BWL	BROKEN WHITE LINE - 6"
	BYL	BROKEN YELLOW LINE - 6"
	DWL	DOTTED WHITE LINE - 6"
	DYL	DOTTED YELLOW LINE - 6"
	DWLEx	DOTTED WHITE LINE EXTENSION - 6"
	DYLEx	DOTTED YELLOW LINE EXTENSION - 6"
	DBWL	DOUBLE WHITE LINE - 2 - 6" LINES
	DBYL	DOUBLE YELLOW - 2 - 6" LINES

GENERAL NOTES:

1. THE LOCATIONS OF EXISTING UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY AND HAVE NOT BEEN INDEPENDENTLY VERIFIED BY THE OWNER OR ITS REPRESENTATIVE. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK, AND AGREES TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE OCCASIONED BY THE CONTRACTOR'S FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UNDERGROUND UTILITIES.
2. WHERE AN EXISTING UTILITY IS FOUND TO CONFLICT WITH THE PROPOSED WORK, THE LOCATION, ELEVATION AND SIZE OF THE UTILITY SHALL BE ACCURATELY DETERMINED WITHOUT DELAY BY THE CONTRACTOR, AND THE INFORMATION FURNISHED TO THE ENGINEER FOR RESOLUTION OF THE CONFLICT.
3. THE CONTRACTOR SHALL MAKE ALL ARRANGEMENTS FOR THE ALTERATION AND ADJUSTMENT OF GAS, ELECTRIC, TELEPHONE AND ANY OTHER PRIVATE UTILITIES BY THE UTILITY COMPANIES AND WORK TO BE DONE BY OTHERS.
4. AREAS OUTSIDE THE LIMITS OF PROPOSED WORK DISTURBED BY THE CONTRACTOR'S OPERATIONS SHALL BE RESTORED BY THE CONTRACTOR TO THEIR ORIGINAL CONDITION AT THE CONTRACTOR'S EXPENSE.
5. THE TERM "PROPOSED" (PROP.) MEANS WORK TO BE CONSTRUCTED USING NEW MATERIALS OR, WHERE APPLICABLE, REUSING EXISTING MATERIALS IDENTIFIED AS "REMOVE AND RESET" (R&R).
6. JOINTS BETWEEN NEW HOT MIX ASPHALT PAVEMENT AND SAWCUT EXISTING PAVEMENT SHALL BE SEALED IN ACCORDANCE WITH ITEM 464.5 OF THE MASSHIGHWAY STANDARD SPECIFICATIONS FOR HIGHWAYS AND BRIDGES AND THE MARCH 1, 2019 SUPPLEMENTAL SPECIFICATIONS.
7. ALL EXISTING SIGNS WITHIN THE PROJECT LIMITS SHALL BE RETAINED UNLESS INDICATED OTHERWISE ON THE DRAWINGS.
8. ALL PROPOSED PAVEMENT MARKINGS SHALL BE PAINTED.
9. DRAINAGE ELEVATIONS ARE PROVIDED FOR DESIGN PURPOSES ONLY. THE CONTRACTOR SHALL VERIFY BY TEST PIT, THE LOCATIONS OF EXISTING UTILITIES WHICH MAY CONFLICT WITH THE PROPOSED DRAINAGE DESIGN. ANY FIELD ADJUSTMENTS REQUIRED WILL BE MADE AS APPROVED OR DIRECTED BY THE ENGINEER. ONLY AFTER THE CONTRACTOR VERIFIES ELEVATIONS FOR THE CONSTRUCTABILITY OF THE DRAINAGE SYSTEM SHALL ANY STRUCTURES BE ORDERED. ANY FIELD ADJUSTMENTS TO LINE & GRADE UP TO A DEPTH OF 5' SHALL BE INCLUDED IN THE COST OF THE PIPE. PIPE EXCAVATION GREATER THAN 5' WILL BE PAID UNDER CLASS B TRENCH EXCAVATION.
10. FIELD SURVEY PROVIDED BY CHAPPELL ENGINEERING ASSOCIATES, 201 BOSTON POST ROAD, MARLBOROUGH, MA 01752 IN MARCH 2019. HORIZONTAL DATUM IS BASED ON MASS GRID SYSTEM NAD 1983. ELEVATIONS SHOWN ON THE PLAN REFER TO THE NAVD OF 1988.

ABBREVIATIONS

GENERAL

AADT	ANNUAL AVERAGE DAILY TRAFFIC
ABAN	ABANDON
ADJ	ADJUST
APPROX.	APPROXIMATE
A.C.	ASPHALT CONCRETE
ACCM PIPE	ASPHALT COATED CORRUGATED METAL PIPE
BIT.	BITUMINOUS
BC	BOTTOM OF CURB
BD.	BOUND
BL	BASELINE
BLDG	BUILDING
BM	BENCHMARK
BO	BY OTHERS
BOS	BOTTOM OF SLOPE
BR.	BRIDGE
CB	CATCH BASIN
CBCI	CATCH BASIN WITH CURB INLET
CC	CEMENT CONCRETE
CCM	CEMENT CONCRETE MASONRY
CEM	CEMENT
CI	CURB INLET
CIP	CAST IRON PIPE
CLF	CHAIN LINK FENCE
CL	CENTERLINE
CMP	CORRUGATED METAL PIPE
CRETW	CONCRETE RETAINING WALL
CSP	CORRUGATED STEEL PIPE
CO.	COUNTY
CONC	CONCRETE
CONT	CONTINUOUS
CONST	CONSTRUCTION
CR GR	CROWN GRADE
DHV	DESIGN HOURLY VOLUME
DI	DROP INLET
DIA	DIAMETER
DIP	DUCTILE IRON PIPE
DW	STEADY DON'T WALK - PORTLAND ORANGE
DWY	DRIVEWAY
ELEV (or EL.)	ELEVATION
EMB	EMBANKMENT
EOP	EDGE OF PAVEMENT
EXIST (or EX)	EXISTING
EXC	EXCAVATION
F&C	FRAME AND COVER
F&G	FRAME AND GRATE
FDN.	FOUNDATION
FLDSTN	FIELDSTONE
GAR	GARAGE
GD	GROUND
GG	GAS GATE
GI	GUTTER INLET
GIP	GALVANIZED IRON PIPE
GRAN	GRANITE
GRAV	GRAVEL
GRD	GUARD
HDW	HEADWALL
HMA	HOT MIX ASPHALT
HOR	HORIZONTAL
HYD	HYDRANT
INV	INVERT
JCT	JUNCTION
L	LENGTH OF CURVE
LB	LEACH BASIN
LP	LIGHT POLE
LT	LEFT

ABBREVIATIONS (cont.)

GENERAL

MAX	MAXIMUM
MB	MAILBOX
MH	MANHOLE
MHB	MASSACHUSETTS HIGHWAY BOUND
MIN	MINIMUM
NIC	NOT IN CONTRACT
NO.	NUMBER
PC	POINT OF CURVATURE
PCC	POINT OF COMPOUND CURVATURE
P.G.L.	PROFILE GRADE LINE
PI	POINT OF INTERSECTION
POC	POINT ON CURVE
POT	POINT ON TANGENT
PRC	POINT OF REVERSE CURVATURE
PROJ	PROJECT
PROP	PROPOSED
PSB	PLANTABLE SOIL BORROW
PT	POINT OF TANGENCY
PVC	POINT OF VERTICAL CURVATURE
PVI	POINT OF VERTICAL INTERSECTION
PVT	POINT OF VERTICAL TANGENCY
PVMT	PAVEMENT
PWW	PAVED WATER WAY
R	RADIUS OF CURVATURE
R&D	REMOVE AND DISPOSE
RCP	REINFORCED CONCRETE PIPE
RD	ROAD
RDWY	ROADWAY
REM	REMOVE
RET	RETAIN
RET WALL	RETAINING WALL
ROW	RIGHT OF WAY
RR	RAILROAD
RRFB	RECTANGULAR RAPID FLASHING BEACON
R&R	REMOVE AND RESET
R&S	REMOVE AND STACK
RT	RIGHT
SB	STONE BOUND
SHLD	SHOULDER
SMH	SEWER MANHOLE
ST	STREET
STA	STATION
SSD	STOPPING SIGHT DISTANCE
SHLO	STATE HIGHWAY LAYOUT LINE
SW	SIDEWALK
T	TANGENT DISTANCE OF CURVE/TRUCK %
TAN	TANGENT
TEMP	TEMPORARY
TC	TOP OF CURB
TOS	TOP OF SLOPE
TYP	TYPICAL
UP	UTILITY POLE
VAR	VARIES
VERT	VERTICAL
VC	VERTICAL CURVE
WCR	WHEEL CHAIR RAMP
WG	WATER GATE
WIP	WROUGHT IRON PIPE
WM	WATER METER/WATER MAIN
X-SECT	CROSS SECTION

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CLIENT:
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DEPARTMENT OF PUBLIC WORKS
195 NORTH MAIN STREET
MIDDLETON, MA 01949
PHONE: 978-777-0407

PROJECT:
MAPLE STREET (ROUTE 62)
COMPLETE STREETS PROJECT
MIDDLETON, MA

PREPARED BY:
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PROFESSIONAL CIVIL ENGINEER FOR WORLDTECH ENGINEERING, LLC

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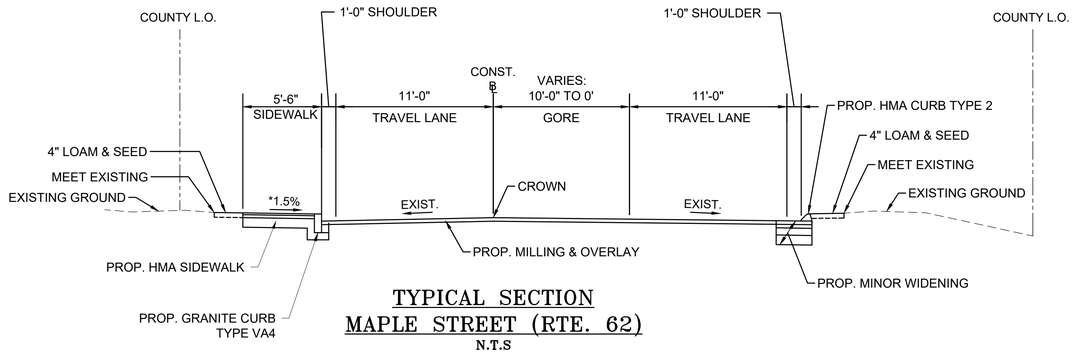
LEGEND AND ABBREVIATIONS

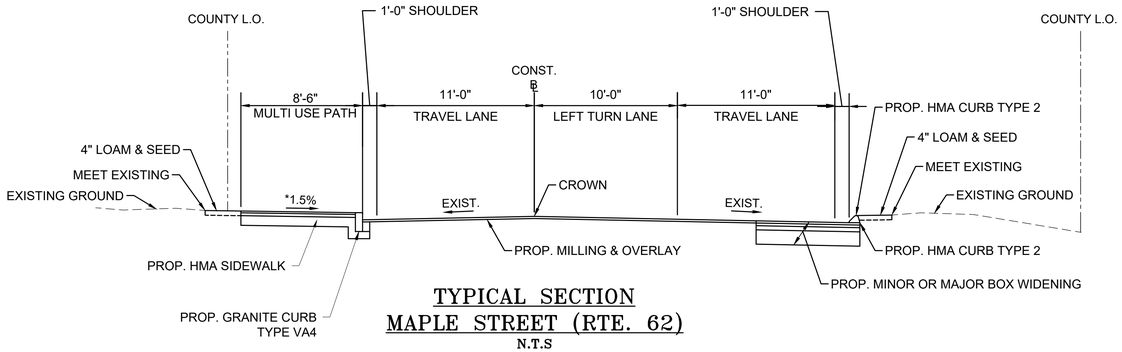
SHEET NO.
2 OF 14



TYPICAL SECTION
MAPLE STREET (RTE. 62)

N.T.S

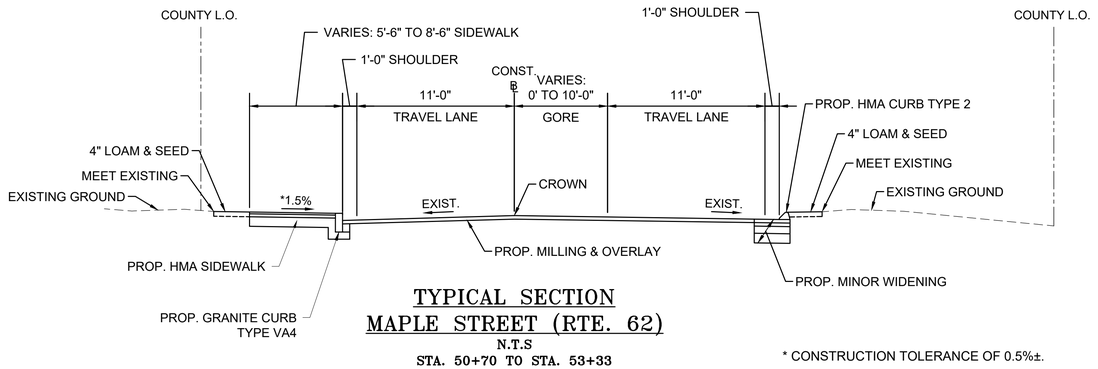
STA. 55+16 TO STA. 56+03



TYPICAL SECTION
MAPLE STREET (RTE. 62)

N.T.S

STA. 53+33 TO STA. 54+05



TYPICAL SECTION
MAPLE STREET (RTE. 62)

N.T.S

STA. 50+70 TO STA. 53+33

* CONSTRUCTION TOLERANCE OF 0.5%±.

PAVEMENT NOTES:

PROPOSED MILLING & OVERLAY:
1 3/4" HOT MIX ASPHALT TOP COURSE OVER
1 3/4" PAVEMENT MILLING

PROPOSED MAJOR BOX WIDENING:
1 3/4" HOT MIX ASPHALT TOP COURSE OVER
1 3/4" HOT MIX ASPHALT BINDER COURSE OVER
3 1/2" HOT MIX ASPHALT BASE COURSE OVER
4" DENSE GRADED CRUSHED STONE OVER
8" GRAVEL BORROW

PROPOSED MINOR BOX WIDENING:
1 3/4" HOT MIX ASPHALT TOP COURSE OVER
1 3/4" HOT MIX ASPHALT BINDER COURSE OVER
6" HIGH EARLY STRENGTH CEMENT CONCRETE BASE OVER
8" GRAVEL BORROW

PROPOSED CEMENT CONCRETE WHEELCHAIR RAMPS:
4" CEMENT CONCRETE
AIR ENTRAINED 4000 PSI, 3/4" 610 OVER
8" GRAVEL BORROW

PROPOSED HMA SIDEWALK:
1" HOT MIX ASPHALT TOP COURSE OVER
1 1/2" HOT MIX ASPHALT BINDER COURSE OVER
8" GRAVEL BORROW

PROPOSED HMA DRIVEWAYS:
1 1/2" HOT MIX ASPHALT TOP COURSE OVER
2" HOT MIX ASPHALT BINDER COURSE OVER
8" GRAVEL BORROW

PROPOSED LAWNS AND SLOPES:
4" LOAM AND SEED

PROJECT TACK COAT NOTES:
ASPHALT EMULSION FOR TACK COAT, GRADE RS-1
SHALL BE PLACED AT A RATE OF:
0.07 GALLONS PER SQUARE YARD OVER MILLED SURFACES
0.05 GALLONS PER SQUARE YARD OVER EXISTING PAVEMENT AND NEW PAVEMENT

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SCALE:	NONE
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WTE PROJ. NO:	18–013.01
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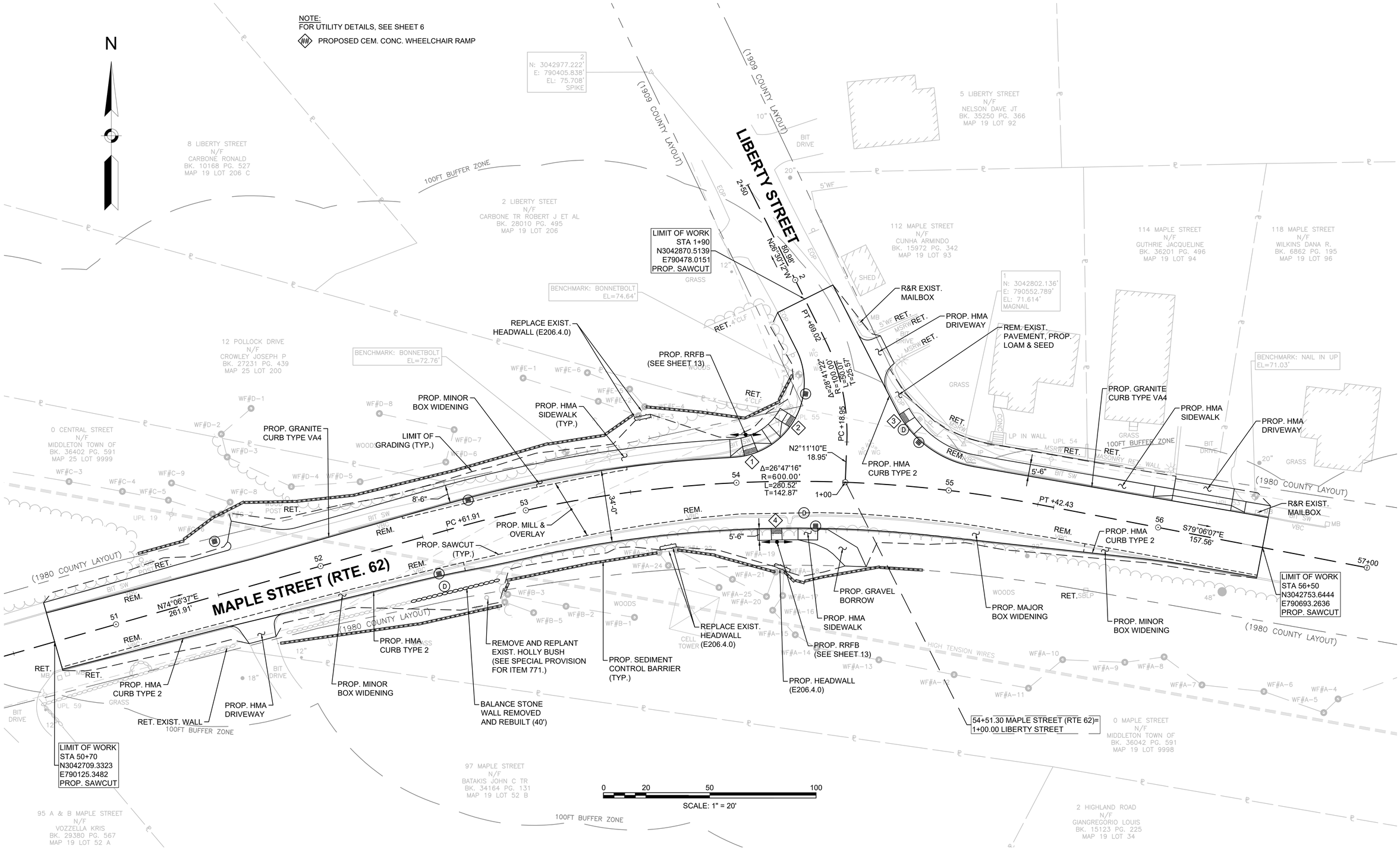
DRAWING TITLE:
TYPICAL SECTIONS

SHEET NO.
3 OF 14

Filename: J:\Middleton\18-013.01 Middleton - Maple Street Complete Street Design\ACAD\18-013.01\Project Drawing Data\Plan Sheet Files\Plan Sheet DWG\18-013.01_HD(Typical Sections).dwg


NOTE:
FOR UTILITY DETAILS, SEE SHEET 6
(##) PROPOSED CEM. CONC. WHEELCHAIR RAMP
N
LIBERTY STREET
MAPLE STREET (RTE. 62)
8 LIBERTY STREET N/F CARBONE RONALD BK. 10168 PG. 527 MAP 19 LOT 206 C
2 LIBERTY STEET N/F CARBONE TR ROBERT J ET AL BK. 28010 PG. 495 MAP 19 LOT 206
5 LIBERTY STREET N/F NELSON DAVE JT BK. 35250 PG. 366 MAP 19 LOT 92
112 MAPLE STREET N/F CUNHA ARMINDO BK. 15972 PG. 342 MAP 19 LOT 93
114 MAPLE STREET N/F GUTHRIE JACQUELINE BK. 36201 PG. 496 MAP 19 LOT 94
118 MAPLE STREET N/F WILKINS DANA R. BK. 6862 PG. 195 MAP 19 LOT 96
12 POLLOCK DRIVE N/F CROWLEY JOSEPH P BK. 27231 PG. 439 MAP 25 LOT 200
0 CENTRAL STREET N/F MIDDLETON TOWN OF BK. 36402 PG. 591 MAP 25 LOT 9999
97 MAPLE STREET N/F BATAKIS JOHN C TR BK. 34164 PG. 131 MAP 19 LOT 52 B
95 A & B MAPLE STREET N/F VOZZELLA KRIS BK. 29380 PG. 567 MAP 19 LOT 52 A
0 MAPLE STREET N/F MIDDLETON TOWN OF BK. 36042 PG. 591 MAP 19 LOT 9998
2 HIGHLAND ROAD N/F GIANGREGORIO LOUIS BK. 15123 PG. 225 MAP 19 LOT 34
(1909 COUNTY LAYOUT)
(1980 COUNTY LAYOUT)
100FT BUFFER ZONE
BENCHMARK: BONNETBOLT EL=74.64'
BENCHMARK: BONNETBOLT EL=72.76'
BENCHMARK: NAIL IN UP EL=71.03'
1 N: 3042802.136' E: 790552.789' EL: 71.614' MAGNAIL
2 N: 3042977.222' E: 790405.838' EL: 75.708' SPIKE
LIMIT OF WORK STA 1+90 N3042870.5139 E790478.0151 PROP. SAWCUT
LIMIT OF WORK STA 50+70 N3042709.3323 E790125.3482 PROP. SAWCUT
LIMIT OF WORK STA 56+50 N3042753.6444 E790693.2636 PROP. SAWCUT
54+51.30 MAPLE STREET (RTE 62)= 1+00.00 LIBERTY STREET
PROP. RRFB (SEE SHEET 13)
PROP. MINOR BOX WIDENING
PROP. HMA SIDEWALK (TYP.)
PROP. GRANITE CURB TYPE VA4
LIMIT OF GRADING (TYP.)
PROP. MILL & OVERLAY
PROP. SAWCUT (TYP.)
PROP. HMA CURB TYPE 2
PROP. HMA DRIVEWAY
REPLACE EXIST. HEADWALL (E206.4.0)
REMOVE AND REPLANT EXIST. HOLLY BUSH (SEE SPECIAL PROVISION FOR ITEM 771.)
BALANCE STONE WALL REMOVED AND REBUILT (40')
PROP. SEDIMENT CONTROL BARRIER (TYP.)
PROP. HEADWALL (E206.4.0)
PROP. GRAVEL BORROW
R&R EXIST. MAILBOX
REM. EXIST. PAVEMENT, PROP. LOAM & SEED
RET. EXIST. WALL
PROP. MAJOR BOX WIDENING
PROP. HMA CURB TYPE 2
PROP. HMA SIDEWALK
PROP. HMA DRIVEWAY
PROP. GRANITE CURB TYPE VA4
PROP. MINOR BOX WIDENING
R&R EXIST. MAILBOX
PC +61.91
PT +69.02
PC +18.95
PT +42.43
N74°06'37"E 261.91'
N26°30'12"W 80.98'
N2°11'10"E 18.95'
S79°06'07"E 157.56'
Δ=26°47'16" R=600.00' L=280.52' T=142.87'
Δ=28°14'22" R=100.00' L=50.07' T=25.57'
8'-6"
5'-6"
34'-0"
0 20 50 100
SCALE: 1" = 20'

CLIENT:	TOWN OF MIDDLETON DEPARTMENT OF PUBLIC WORKS 195 NORTH MAIN STREET MIDDLETON, MA 01949 PHONE: 978-777-0407
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PREPARED BY:	WORLDTECH ENGINEERING 300 TRADECENTER, SUITE 5580 WOBURN, MA 01801 T: 781-933-4800 F: 781-933-4801
	COMMONWEALTH OF MASSACHUSETTS THOMAS F. QUINLAN CIVIL No. 50899 REGISTERED PROFESSIONAL ENGINEER PROFESSIONAL CIVIL ENGINEER FOR WORLDTECH ENGINEERING, LLC

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SCALE:	1" = 20'
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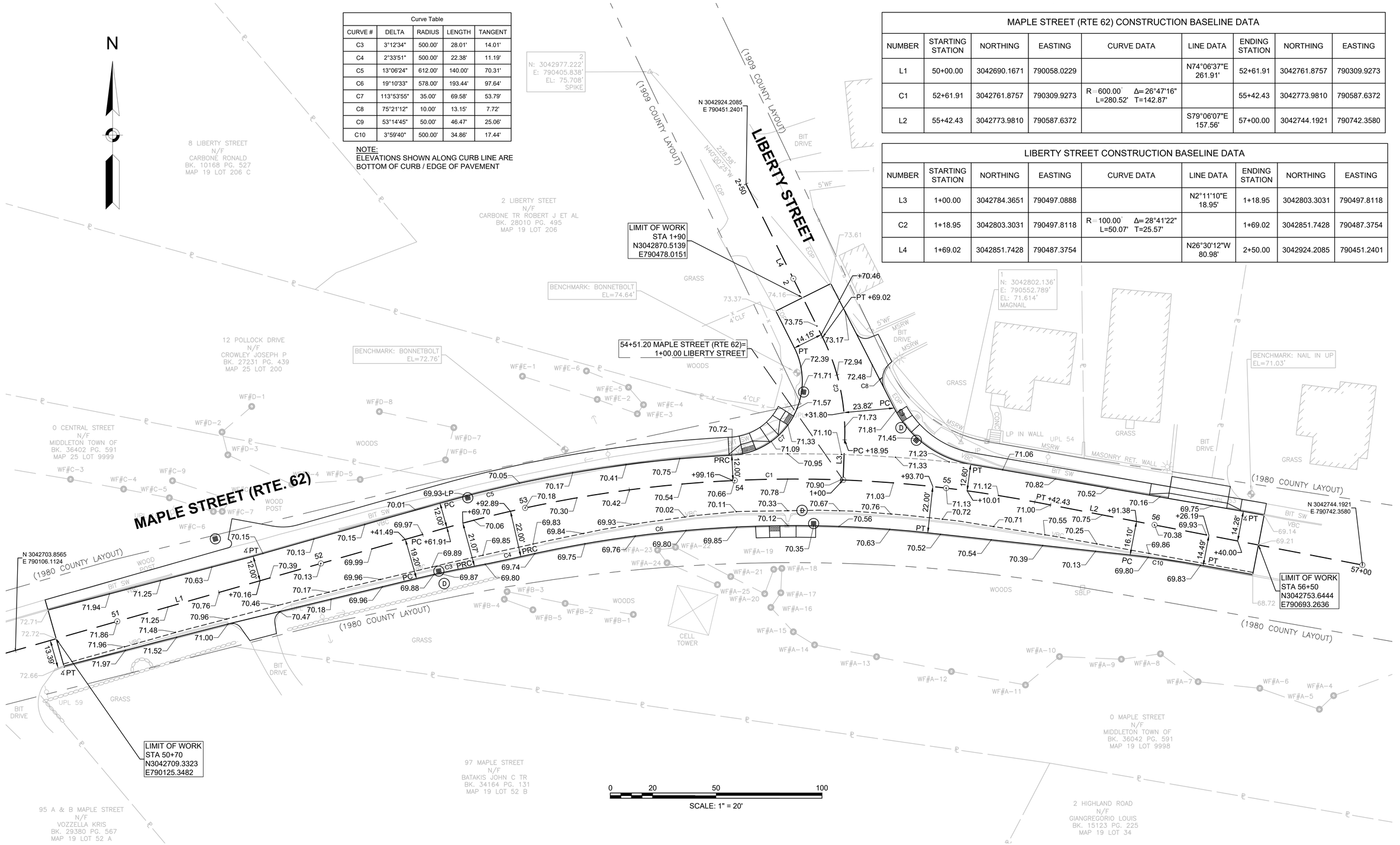
DRAWING TITLE: CONSTRUCTION PLAN

SHEET NO. 4 OF 14

Filename: J:\Middleton\18-013.01 Middleton - Maple Street Complete Street Design\ACAD\18-013.01\Project Drawing Data\Plan Sheet Files\Plan Sheet DWG\18-013.01_HD(Construction Plans).dwg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0 MAPLE STREET N/F MIDDLETON TOWN OF BK. 36042 PG. 591 MAP 19 LOT 9998
2 HIGHLAND ROAD N/F GIANGREGORIO LOUIS BK. 15123 PG. 225 MAP 19 LOT 34
LIMIT OF WORK STA 1+90 N3042870.5139 E790478.0151
LIMIT OF WORK STA 50+70 N3042709.3323 E790125.3482
LIMIT OF WORK STA 56+50 N3042753.6444 E790693.2636
54+51.20 MAPLE STREET (RTE 62)= 1+00.00 LIBERTY STREET
BENCHMARK: BONNETBOLT EL=74.64'
BENCHMARK: BONNETBOLT EL=72.76'
BENCHMARK: NAIL IN UP EL=71.03'
N 3042924.2085 E 790451.2401
N 3042703.8565 E 790106.1124
N 3042744.1921 E 790742.3580
1 N: 3042802.136' E: 790552.789' EL: 71.614' MAGNAIL
2 N: 3042977.222' E: 790405.838' EL: 75.708' SPIKE
PC +18.95
PT +69.02
PC +61.91
PRC +99.16
PC +92.89
PRC
PT
PC +31.80
PT +93.70
PT +42.43
PC +10.01
PT +40.00
L1
L2
L4
C1
C3
C4
C5
C6
C7
C8
C10
WOODS
GRASS
CELL TOWER
BIT DRIVE
UPL 59
LP IN WALL
MASONRY RET. WALL
WOOD POST
4'CLF
5'WF
MSRW
EOP
SBLP
0 20 50 100
SCALE: 1" = 20'

Curve Table				
CURVE #	DELTA	RADIUS	LENGTH	TANGENT
C3	3°12'34"	500.00'	28.01'	14.01'
C4	2°33'51"	500.00'	22.38'	11.19'
C5	13°06'24"	612.00'	140.00'	70.31'
C6	19°10'33"	578.00'	193.44'	97.64'
C7	113°53'55"	35.00'	69.58'	53.79'
C8	75°21'12"	10.00'	13.15'	7.72'
C9	53°14'45"	50.00'	46.47'	25.06'
C10	3°59'40"	500.00'	34.86'	17.44'

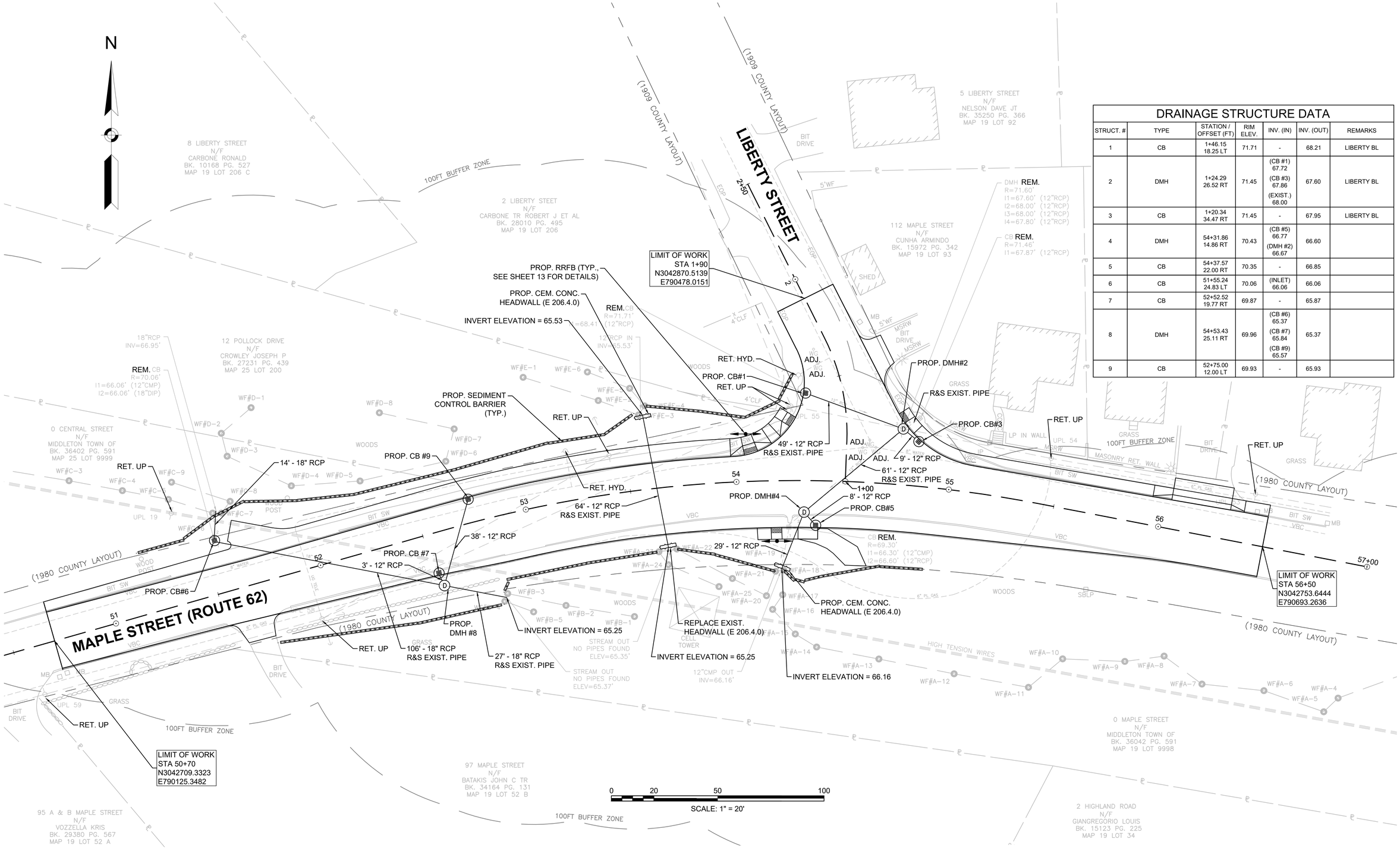
NOTE:
ELEVATIONS SHOWN ALONG CURB LINE ARE BOTTOM OF CURB / EDGE OF PAVEMENT

MAPLE STREET (RTE 62) CONSTRUCTION BASELINE DATA								
NUMBER	STARTING STATION	NORTHING	EASTING	CURVE DATA	LINE DATA	ENDING STATION	NORTHING	EASTING
L1	50+00.00	3042690.1671	790058.0229		N74°06'37"E 261.91'	52+61.91	3042761.8757	790309.9273
C1	52+61.91	3042761.8757	790309.9273	R=600.00' Δ=26°47'16" L=280.52' T=142.87'		55+42.43	3042773.9810	790587.6372
L2	55+42.43	3042773.9810	790587.6372		S79°06'07"E 157.56'	57+00.00	3042744.1921	790742.3580

LIBERTY STREET CONSTRUCTION BASELINE DATA								
NUMBER	STARTING STATION	NORTHING	EASTING	CURVE DATA	LINE DATA	ENDING STATION	NORTHING	EASTING
L3	1+00.00	3042784.3651	790497.0888		N2°11'10"E 18.95'	1+18.95	3042803.3031	790497.8118
C2	1+18.95	3042803.3031	790497.8118	R=100.00' Δ=28°41'22" L=50.07' T=25.57'		1+69.02	3042851.7428	790487.3754
L4	1+69.02	3042851.7428	790487.3754		N26°30'12"W 80.98'	2+50.00	3042924.2085	790451.2401

CLIENT: TOWN OF MIDDLETON DEPARTMENT OF PUBLIC WORKS 195 NORTH MAIN STREET MIDDLETON, MA 01949 PHONE: 978-777-0407	PROJECT: MAPLE STREET (ROUTE 62) COMPLETE STREETS PROJECT MIDDLETON, MA	PREPARED BY: WORLDTECH ENGINEERING 300 TRADECENTER, SUITE 5580 WOBURN, MA 01801 T: 781-933-4800 F: 781-933-4801	THOMAS F. QUINLAN CIVIL No. 50899 REGISTERED PROFESSIONAL ENGINEER COMMONWEALTH OF MASSACHUSETTS PROFESSIONAL CIVIL ENGINEER FOR WORLDTECH ENGINEERING, LLC	NO. / DATE / REVISION	SCALE: 1" = 20'	DRAWING TITLE: CURB TIE AND GRADING PLAN	SHEET NO. 5 OF 14
					DATE: MAY 2019		
					WTE PROJ. NO: 18-013.01		
					DESIGNED BY: KMC		
					CHECKED BY: TFQ		

Filename: J:\Middleton\18-013.01 Middleton - Maple Street Complete Street Design\ACAD\18-013.01\Project Drawing Data\Plan Sheet Files\Plan Sheet DWG\18-013.01_HD(Curb Tie & Grading).dwg


N
LIBERTY STREET
MAPLE STREET (ROUTE 62)
(1909 COUNTY LAYOUT)
(1980 COUNTY LAYOUT)
100FT BUFFER ZONE
8 LIBERTY STREET N/F CARBONE RONALD BK. 10168 PG. 527 MAP 19 LOT 206 C
2 LIBERTY STEET N/F CARBONE TR ROBERT J ET AL BK. 28010 PG. 495 MAP 19 LOT 206
5 LIBERTY STREET N/F NELSON DAVE JT BK. 35250 PG. 366 MAP 19 LOT 92
112 MAPLE STREET N/F CUNHA ARMINDO BK. 15972 PG. 342 MAP 19 LOT 93
12 POLLOCK DRIVE N/F CROWLEY JOSEPH P BK. 27231 PG. 439 MAP 25 LOT 200
0 CENTRAL STREET N/F MIDDLETON TOWN OF BK. 36402 PG. 591 MAP 25 LOT 9999
97 MAPLE STREET N/F BATAKIS JOHN C TR BK. 34164 PG. 131 MAP 19 LOT 52 B
95 A & B MAPLE STREET N/F VOZZELLA KRIS BK. 29380 PG. 567 MAP 19 LOT 52 A
0 MAPLE STREET N/F MIDDLETON TOWN OF BK. 36042 PG. 591 MAP 19 LOT 9998
2 HIGHLAND ROAD N/F GIANGREGORIO LOUIS BK. 15123 PG. 225 MAP 19 LOT 34
LIMIT OF WORK STA 1+90 N3042870.5139 E790478.0151
LIMIT OF WORK STA 50+70 N3042709.3323 E790125.3482
LIMIT OF WORK STA 56+50 N3042753.6444 E790693.2636
PROP. RRFB (TYP., SEE SHEET 13 FOR DETAILS)
PROP. CEM. CONC. HEADWALL (E 206.4.0)
INVERT ELEVATION = 65.53
REM. CB R=71.71' (12"RCP) =68.41
12"RCP IN INV=65.53'
18"RCP INV=66.95'
REM. CB R=70.06' I1=66.06' (12"CMP) I2=66.06' (18"DIP)
PROP. SEDIMENT CONTROL BARRIER (TYP.)
RET. UP
RET. HYD.
ADJ.
PROP. CB#1
PROP. DMH#2
R&S EXIST. PIPE
49' - 12" RCP
R&S EXIST. PIPE
PROP. CB#3
9' - 12" RCP
61' - 12" RCP
R&S EXIST. PIPE
PROP. DMH#4
8' - 12" RCP
PROP. CB#5
29' - 12" RCP
PROP. CB #9
14' - 18" RCP
64' - 12" RCP
R&S EXIST. PIPE
PROP. CB #7
38' - 12" RCP
3' - 12" RCP
PROP. CB#6
PROP. DMH #8
106' - 18" RCP
R&S EXIST. PIPE
27' - 18" RCP
R&S EXIST. PIPE
INVERT ELEVATION = 65.25
REPLACE EXIST. HEADWALL (E 206.4.0)
INVERT ELEVATION = 65.25
INVERT ELEVATION = 66.16
PROP. CEM. CONC. HEADWALL (E 206.4.0)
REM. DMH R=71.60' I1=67.60' (12"RCP) I2=68.00' (12"RCP) I3=68.00' (12"RCP) I4=67.80' (12"RCP)
REM. CB R=71.46' I1=67.87' (12"RCP)
CB REM. R=69.30' I1=66.30' (12"CMP) I2=66.60' (12"RCP)
STREAM OUT NO PIPES FOUND ELEV=65.35'
STREAM OUT NO PIPES FOUND ELEV=65.37'
12"CMP OUT INV=66.16'
CELL TOWER
HIGH TENSION WIRES
SCALE: 1" = 20'

DRAINAGE STRUCTURE DATA

STRUCT. #	TYPE	STATION / OFFSET (FT)	RIM ELEV.	INV. (IN)	INV. (OUT)	REMARKS
1	CB	1+46.15 18.25 LT	71.71	-	68.21	LIBERTY BL
2	DMH	1+24.29 26.52 RT	71.45	(CB #1) 67.72 (CB #3) 67.86 (EXIST.) 68.00	67.60	LIBERTY BL
3	CB	1+20.34 34.47 RT	71.45	-	67.95	LIBERTY BL
4	DMH	54+31.86 14.86 RT	70.43	(CB #5) 66.77 (DMH #2) 66.67	66.60	
5	CB	54+37.57 22.00 RT	70.35	-	66.85	
6	CB	51+55.24 24.83 LT	70.06	(INLET) 66.06	66.06	
7	CB	52+52.52 19.77 RT	69.87	-	65.87	
8	DMH	54+53.43 25.11 RT	69.96	(CB #6) 65.37 (CB #7) 65.84 (CB #9) 65.57	65.37	
9	CB	52+75.00 12.00 LT	69.93	-	65.93	

CLIENT:

TOWN OF MIDDLETON
DEPARTMENT OF PUBLIC WORKS
195 NORTH MAIN STREET
MIDDLETON, MA 01949
PHONE: 978-777-0407

PROJECT:

MAPLE STREET (ROUTE 62)
COMPLETE STREETS PROJECT

MIDDLETON, MA

PREPARED BY:

WORLDTECH ENGINEERING
300 TRADECENTER, SUITE 5580
WOBURN, MA 01801
T: 781-933-4800
F: 781-933-4801

COMMONWEALTH OF MASSACHUSETTS
THOMAS F. QUINLAN
CIVIL
No. 50899
REGISTERED PROFESSIONAL ENGINEER

PROFESSIONAL CIVIL ENGINEER FOR WORLDTECH ENGINEERING, LLC

NO.	DATE	REVISION

SCALE:	1" = 20'
DATE:	MAY 2019
WTE PROJ. NO:	18-013.01
DESIGNED BY:	KMC
CHECKED BY:	TFQ

DRAWING TITLE:

DRAWING AND UTILITY PLAN

SHEET NO.

6 OF 14

Filename: J:\Middleton\18-013.01 Middleton - Maple Street Complete Street Design\ACAD\18-013.01\Project Drawing Data\Plan Sheet Files\Plan Sheet DWG\18-013.01_HD(Drainage and Utility Plans).dwg

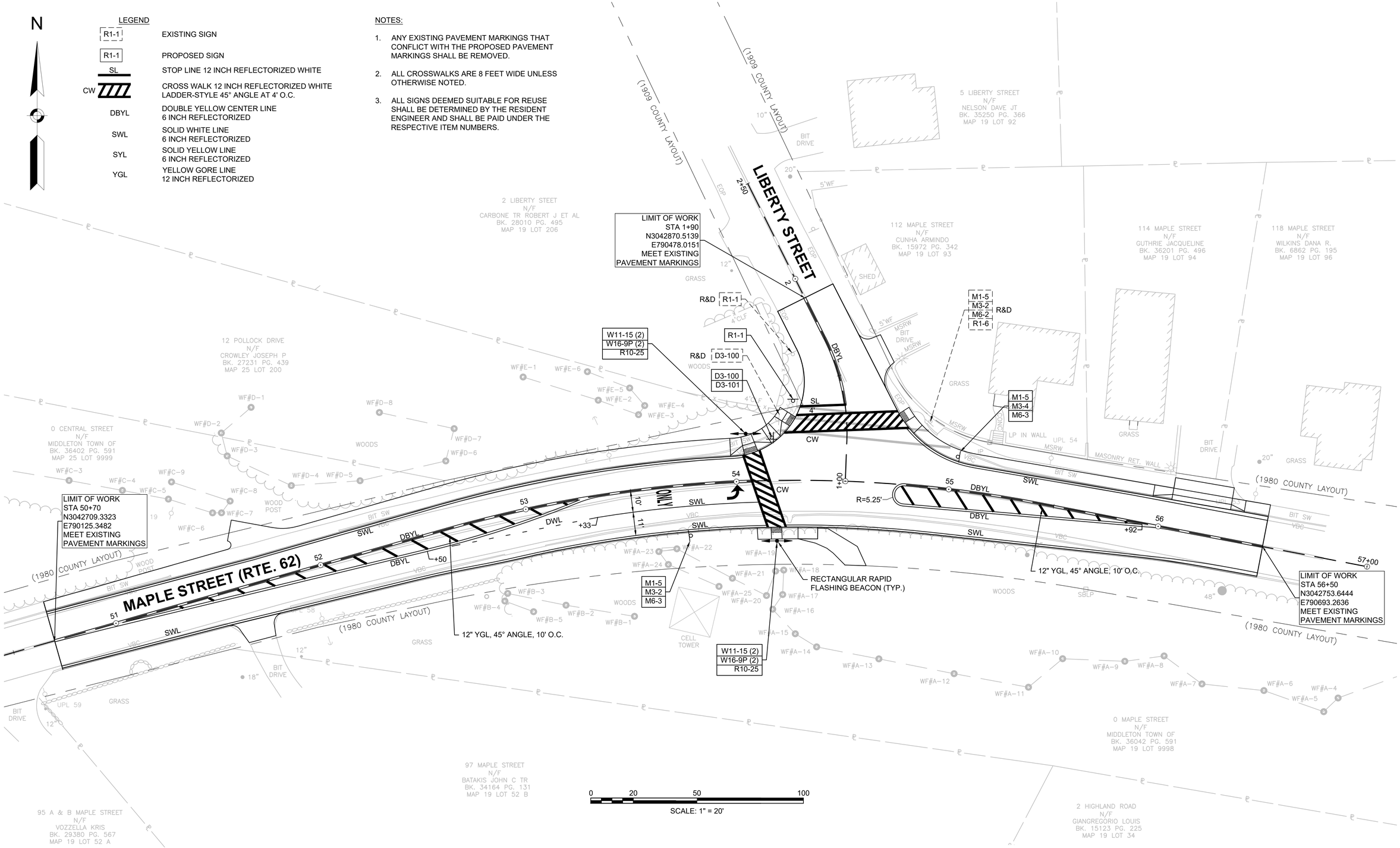
N

LEGEND

R1-1	EXISTING SIGN
R1-1	PROPOSED SIGN
SL	STOP LINE 12 INCH REFLECTORIZED WHITE
CW	CROSS WALK 12 INCH REFLECTORIZED WHITE LADDER-STYLE 45° ANGLE AT 4' O.C.
DBYL	DOUBLE YELLOW CENTER LINE 6 INCH REFLECTORIZED
SWL	SOLID WHITE LINE 6 INCH REFLECTORIZED
SYL	SOLID YELLOW LINE 6 INCH REFLECTORIZED
YGL	YELLOW GORE LINE 12 INCH REFLECTORIZED

NOTES:

1. ANY EXISTING PAVEMENT MARKINGS THAT CONFLICT WITH THE PROPOSED PAVEMENT MARKINGS SHALL BE REMOVED.
2. ALL CROSSWALKS ARE 8 FEET WIDE UNLESS OTHERWISE NOTED.
3. ALL SIGNS DEEMED SUITABLE FOR REUSE SHALL BE DETERMINED BY THE RESIDENT ENGINEER AND SHALL BE PAID UNDER THE RESPECTIVE ITEM NUMBERS.


MAPLE STREET (RTE. 62)
LIBERTY STREET
(1909 COUNTY LAYOUT)
(1980 COUNTY LAYOUT)
LIMIT OF WORK
STA 50+70
N3042709.3323
E790125.3482
MEET EXISTING
PAVEMENT MARKINGS
LIMIT OF WORK
STA 1+90
N3042870.5139
E790478.0151
MEET EXISTING
PAVEMENT MARKINGS
LIMIT OF WORK
STA 56+50
N3042753.6444
E790693.2636
MEET EXISTING
PAVEMENT MARKINGS
12" YGL, 45° ANGLE, 10' O.C.
RECTANGULAR RAPID FLASHING BEACON (TYP.)
5 LIBERTY STREET N/F NELSON DAVE JT BK. 35250 PG. 366 MAP 19 LOT 92
2 LIBERTY STEET N/F CARBONE TR ROBERT J ET AL BK. 28010 PG. 495 MAP 19 LOT 206
112 MAPLE STREET N/F CUNHA ARMINDO BK. 15972 PG. 342 MAP 19 LOT 93
114 MAPLE STREET N/F GUTHRIE JACQUELINE BK. 36201 PG. 496 MAP 19 LOT 94
118 MAPLE STREET N/F WILKINS DANA R. BK. 6862 PG. 195 MAP 19 LOT 96
12 POLLOCK DRIVE N/F CROWLEY JOSEPH P BK. 27231 PG. 439 MAP 25 LOT 200
0 CENTRAL STREET N/F MIDDLETON TOWN OF BK. 36402 PG. 591 MAP 25 LOT 9999
95 A & B MAPLE STREET N/F VOZZELLA KRIS BK. 29380 PG. 567 MAP 19 LOT 52 A
97 MAPLE STREET N/F BATAKIS JOHN C TR BK. 34164 PG. 131 MAP 19 LOT 52 B
0 MAPLE STREET N/F MIDDLETON TOWN OF BK. 36042 PG. 591 MAP 19 LOT 9998
2 HIGHLAND ROAD N/F GIANGREGORIO LOUIS BK. 15123 PG. 225 MAP 19 LOT 34
R=5.25'
ONLY
CELL TOWER
SCALE: 1" = 20'

CLIENT: TOWN OF MIDDLETON DEPARTMENT OF PUBLIC WORKS, 195 NORTH MAIN STREET, MIDDLETON, MA 01949, PHONE: 978-777-0407	PROJECT: MAPLE STREET (ROUTE 62) COMPLETE STREETS PROJECT, MIDDLETON, MA	PREPARED BY: WORLDTECH ENGINEERING, 300 TRADECENTER, SUITE 5580, WOBURN, MA 01801, T: 781-933-4800, F: 781-933-4801	THOMAS F. QUINLAN, CIVIL, No. 50899, REGISTERED PROFESSIONAL ENGINEER, COMMONWEALTH OF MASSACHUSETTS — PROFESSIONAL CIVIL ENGINEER FOR WORLDTECH ENGINEERING, LLC	NO. / DATE / REVISION	SCALE: 1" = 20'	DRAWING TITLE: SIGN AND PAVEMENT MARKING PLAN	SHEET NO. 7 OF 14
					DATE: MAY 2019		
					WTE PROJ. NO: 18–013.01		
					DESIGNED BY: KMC		
					CHECKED BY: TFQ		

Filename: J:\Middleton\18-013.01 Middleton - Maple Street Complete Street Design\ACAD\18-013.01\Project Drawing Data\Plan Sheet Files\Plan Sheet DWG\18-013.01_HD(Sign and Pavement Marking Plans).dwg

TRAFFIC SIGN SUMMARY

SIGN ID NUMBER	SIZE		MESSAGE	DIMENSIONS (IN)			NUMBER REQUIRED	COLOR			POST SIZE AND NUMBER REQUIRED	UNIT AREA (S.F.)	TOTAL AREA (S.F.)
	WIDTH (IN)	HEIGHT (IN)		LETTER HEIGHT	VERTICAL SPACING	ARROW RTE. MKR.		BACK-GROUND	LEGEND	BORDER			
D3-100	45	9	LIBERTY ST	3	3	3	2	GREEN	WHITE	WHITE	P5 1 REQ'D	EACH	EACH
D3-101	39	9	MAPLE ST	3	3	3	2	GREEN	WHITE	WHITE	MOUNT WITH D3-100	EACH	EACH
M1-5	24	24	62	1	1	1	2	WHITE	BLACK	BLACK	P5 1 REQ'D	4.00	8.00
M3-2	24	12	EAST				1	WHITE	BLACK	BLACK	MOUNT WITH M1-5	2.00	2.00
M3-4	24	12	WEST				1	WHITE	BLACK	BLACK	MOUNT WITH M1-5	2.00	2.00
M6-3	21	15					2	WHITE	BLACK	BLACK	MOUNT WITH M1-5	2.19	4.38
R1-1	36	36	STOP				1	RED	WHITE	WHITE	P5 1 REQ'D	9.00	9.00
R10-25	9	12	PUSH BUTTON TO TURN ON WARNING LIGHTS				2	WHITE	BLACK	BLACK	MOUNT WITH RRFB	0.75	1.50
W11-15	30	30					4	FLUOR. YELLOW GREEN	BLACK	BLACK	MOUNT WITH RRFB	6.25	25.00
W16-7PL	12	24					2	FLUOR. YELLOW GREEN	BLACK	BLACK	MOUNT WITH RRFB	2.00	4.00
W16-7PR	12	24					2	FLUOR. YELLOW GREEN	BLACK	BLACK	MOUNT WITH RRFB	2.00	4.00
											TOTAL AREA (S.F)		59.88

TEMPORARY CONSTRUCTION SIGN SUMMARY

SIGN ID NUMBER	SIZE		MESSAGE	DIMENSIONS (IN)			NUMBER REQUIRED	COLOR		
	WIDTH (IN)	HEIGHT (IN)		LETTER HEIGHT	VERTICAL SPACING	ARROW RTE. MKR.		BACK-GROUND	LEGEND	BORDER
MA-R2-10a	30	24	WORK ZONE SPEEDING FINES DOUBLED	2	2	2	3	ORANGE WHITE	BLACK	BLACK
MA-R2-10e	24	30	END ROAD WORK DOUBLE FINES END				3	ORANGE WHITE	BLACK	BLACK
R9-9	24	12	SIDEWALK CLOSED	1	1	1	2	WHITE	BLACK	BLACK
R9-10	24	12	SIDEWALK CLOSED USE OTHER SIDE				2	WHITE	BLACK	BLACK
R9-11aL	24	12	SIDEWALK CLOSED CROSS HERE				1	WHITE	BLACK	BLACK
R9-11aR	24	12	SIDEWALK CLOSED CROSS HERE				1	WHITE	BLACK	BLACK
W5-1	36	36	ROAD NARROWS				1	ORANGE	BLACK	BLACK
W11-2	30	30					4	ORANGE	BLACK	BLACK
W13-1	18	18	XX MPH				2	ORANGE	BLACK	BLACK
W16-7pL	24	12					4	ORANGE	BLACK	BLACK
W16-9p	24	12	AHEAD				2	ORANGE	BLACK	BLACK
W20-1	36	36	ROAD WORK AHEAD				4	ORANGE	BLACK	BLACK
W20-4	36	36	ONE LANE ROAD 500 FT				4	ORANGE	BLACK	BLACK
MA-W20-7b	36	36	POLICE OFFICER AHEAD	2	2	2	4	ORANGE	BLACK	BLACK
W21-5a	36	36	RIGHT SHOULDER CLOSED	1	1	1	1	ORANGE	BLACK	BLACK

SIGN SUMMARY NOTES:

1. NUMERICAL LIMITS AND JUSTIFCATION FOR SPEED & ADVISORY EXIT SPEED SIGNS SHALL BE OBTAINED FROM THE SPEED ZONING UNIT OF THE TRAFFIC ENGINEERING SECTION, MASSDOT, BEFORE FABRICATION AND/OR ERECTION.

2. HIGH INTENSITY ENCAPSULATED LENS REFLECTIVE SHEETING SHALL BE USED FOR ALL SIGNS. THE "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES" 2009 EDITION, THE 1996 MASSDOT CONSTRUCTION AND TRAFFIC STANDARD DETAILS", AND ALL ADMENDMENTS WILL GOVERN.

3. (1) SEE MUTCD 2009 EDITION, 1979 STD. HWY. SIGNS AND SECTION M9.30.0 TYPE III OF THE MASSDOT STANDARD SPECIFICATION FOR TEXT DIMENSIONS AND COLOR.
   (2) SEE MASSDOT SIGN STANDARDS.
   (3) SEE TOWN OF MIDDLETON CONSTRUCTION STANDARDS

CLIENT:
TOWN OF MIDDLETON
DEPARTMENT OF PUBLIC WORKS
195 NORTH MAIN STREET
MIDDLETON, MA 01949
PHONE: 978-777-0407

PROJECT:
MAPLE STREET (ROUTE 62)
COMPLETE STREETS PROJECT
MIDDLETON, MA

PREPARED BY:
WORLDTECH ENGINEERING
300 TRADECENTER, SUITE 5580
WOBURN, MA 01801
T: 781-933-4800
F: 781-933-4801

COMMONWEALTH OF MASSACHUSETTS
THOMAS F. QUINLAN
CIVIL
No. 50899
REGISTERED PROFESSIONAL ENGINEER
PROFESSIONAL CIVIL ENGINEER FOR WORLDTECH ENGINEERING, LLC

NO.	DATE	REVISION

SCALE:	NONE
DATE:	MAY 2019
WTE PROJ. NO:	18-013.01
DESIGNED BY:	KMC
CHECKED BY:	TFQ

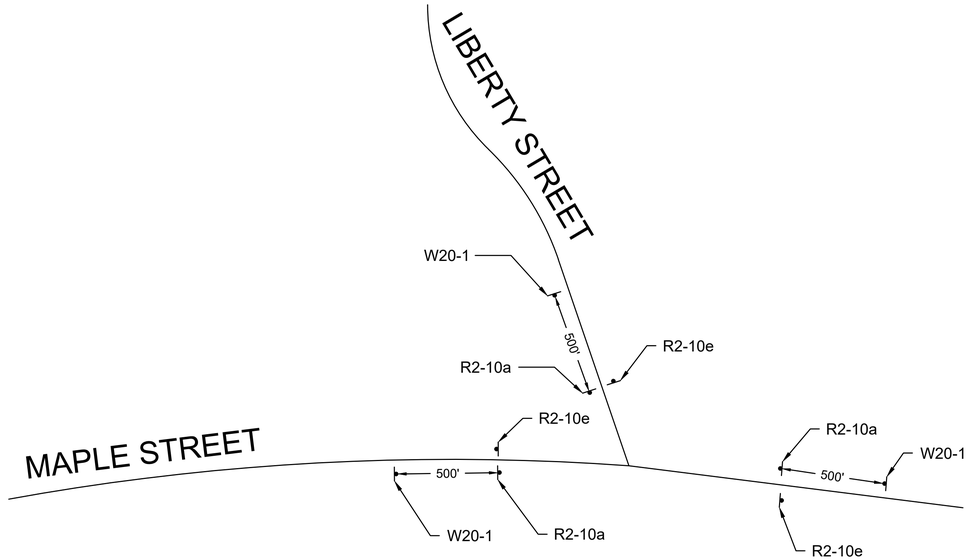
DRAWING TITLE:
TRAFFIC SIGN SUMMARY

SHEET NO.
8 OF 14

Filename: J:\Middleton\18-013.01 Middleton - Maple Street Complete Street Design\ACAD\18-013.01\Project Drawing Data\Plan Sheet Files\Plan Sheet DWG\18-013.01_HD(Sign and Pavement Marking Plans).dwg

NOTES:

1. ALL TEMPORARY TRAFFIC CONTROL WORK SHALL CONFORM TO THE LATEST EDITION OF THE "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES" (MUTCD) AND THE MASSDOT STANDARD DETAILS AND DRAWINGS FOR THE DEVELOPMENT OF TEMPORARY TRAFFIC CONTROL PLANS, UNLESS SUPERCEDED BY THESE PLANS.
2. ALL SIGN LEGENDS, BORDERS, AND MOUNTING SHALL BE IN ACCORDANCE WITH THE MUTCD.
3. TEMPORARY CONSTRUCTION SIGNING AND ALL OTHER TRAFFIC CONTROL DEVICES SHALL BE IN PLACE PRIOR TO THE START OF ANY WORK.
4. TEMPORARY CONSTRUCTION SIGNING, BARRICADES, AND ALL OTHER NECESSARY WORK ZONE TRAFFIC CONTROL DEVICES SHALL BE REMOVED FROM THE HIGHWAY OR COVERED WHEN THEY ARE NOT REQUIRED FOR CONTROL OF TRAFFIC.
5. SIGNS AND SIGN SUPPORTS LOCATED ON OR NEAR THE TRAVELED WAY, CHANNELIZING DEVICES, BARRIERS, AND CRASH ATTENUATORS MUST PASS THE CRITERIA SET FORTH IN NCHRP REPORT 350, "RECOMMENDED PROCEDURES FOR THE SAFETY PERFORMANCE EVALUATION OF HIGHWAY FEATURES" AND/OR "MANUAL FOR ASSESSING SAFETY HARDWARE" (MASH).
6. THE FIRST FIVE PLASTIC DRUMS OF A TAPER SHALL BE MOUNTED WITH TYPE A LIGHTS.
7. THE ADVISORY SPEED LIMIT, IF REQUIRED, SHALL BE DETERMINED BY THE ENGINEER.
8. DISTANCES ARE A GUIDE AND MAY BE ADJUSTED IN THE FIELD BY THE ENGINEER.
9. MAXIMUM SPACING OF TRAFFIC DEVICES IN A TAPER (DRUMS OR CONES) IS EQUAL IN FEET TO THE SPEED LIMIT IN MPH.
10. ALL DRUMS SHALL BE APPROXIMATELY PLACED AND MOVED AS NECESSARY TO MAINTAIN ADEQUATE ABUTTER ACCESS AT ALL TIMES.
11. MINIMUM LANE WIDTH IS TO BE 11 FEET UNLESS OTHERWISE SHOWN. MINIMUM LANE WIDTH TO BE MEASURED FROM THE EDGE OF DRUMS OR MEDIAN BARRIER.
12. ALL SIGNS SHALL BE MOUNTED ON THEIR OWN STANDARD SIGN SUPPORTS.
13. CONTRACTOR SHALL NOTIFY EACH ABUTTER AT LEAST 48 HOURS IN ADVANCE OF THE START OF ANY WORK THAT WILL REQUIRE THE TEMPORARY CLOSURE OF ACCESS, SUCH AS CONDUIT INSTALLATION EXISTING PAVEMENT EXCAVATION, TEMPORARY DRIVEWAY PAVEMENT PLACEMENT AND SIMILAR OPERATIONS.
14. A MINIMUM OF ONE LANE OF TRAFFIC IN EACH DIRECTION ON TWO WAY STREETS SHALL BE MAINTAINED AT ALL TIMES, EXCEPT DURING WORKING HOURS, TRAFFIC MAY BE REDUCED TO ONE LANE UNDER POLICE OR FLAGGER CONTROL FOR SHORT TIME PERIODS WHEN REQUIRED FOR THE WORK, AS SHOWN.
15. GRADE SEPARATIONS IN EXCESS OF 2" DURING NON-WORKING HOURS (SEE SPECIAL PROVISIONS) WILL REQUIRE DELINEATION BY USE OF DRUMS.
16. EXCAVATION EDGES IN EXCESS OF 4" DEEP SHALL BE PROTECTED DURING NON-WORKING HOURS (SEE SPECIAL PROVISIONS) BY BACKFILLING WITH A WEDGE OF GRAVEL OR SOIL TO COMPACTED 1:4 SLOPE.
17. CONSTRUCTION SIGNS ASSOCIATED WITH THE DAILY LANE CLOSURES AND SHOULDER WORK AREAS WILL NOT BE MEASURED FOR PAYMENT MORE THAN ONCE REGARDLESS OF THE NUMBER OF TIMES THE SIGNS ARE REUSED.



ADVANCED SIGNING PLAN

NOT TO SCALE

LEGEND:

- ● REFLECTORIZED PLASTIC DRUM OR 36" CONE
- P/F POLICE/FLAGGER DETAIL
- TYPE III BARRICADE
- CHANGEABLE MESSAGE SIGN
- ARROW BOARD
- WORK ZONE
- DIRECTION OF TRAFFIC
- IMPACT ATTENUATOR
- MEDIAN BARRIER
- MEDIAN BARRIER WITH WARNING LIGHTS
- WORK VEHICLE
- TRUCK MOUNTED ATTENUATOR
- TRAFFIC OR PEDESTRIAN SIGNAL
- SIGN

SUGGESTED WORK ZONE WARNING SIGN SPACING

ROAD TYPE	DISTANCE BETWEEN SIGNS **		
	A	B	C
LOCAL OR LOW VOLUME ROADWAYS*	350 (100)	350 (100)	350 (100)
MOST OTHER ROADWAYS*	500 (150)	500 (150)	500 (150)
FREEWAYS AND EXPRESSWAYS*	1,000 (300)	1,500 (450)	2,640 (800)

* ROAD TYPE TO BE DETERMINED BY MASSDOT OFFICE OF TRANSPORTATION PLANNING.

** DISTANCES ARE SHOWN IN FEET (METERS). THE COLUMN HEADINGS A, B, AND C ARE THE DIMENSIONS SHOWN IN THE DETAIL/ TYPICAL SETUP FIGURES. THE A DIMENSION IS THE DISTANCE FROM THE TRANSITION OR POINT OF RESTRICTION TO THE FIRST SIGN. THE B DIMENSION IS THE DISTANCE BETWEEN THE FIRST AND SECOND SIGNS. THE C DIMENSION IS THE DISTANCE BETWEEN THE SECOND AND THIRD SIGNS. (THE "THIRD" SIGN IS THE FIRST ONE TYPICALLY ENCOUNTERED BY A DRIVER APPROACHING A TEMPORARY TRAFFIC CONTROL (TTC) ZONE.)

THE "THIRD" SIGN ABOVE IS TYPICALLY REFERRED TO AS AN "ADVANCE WARNING" SIGN ON THE TTCP SETUPS. THESE ADVANCE WARNING SIGNS ARE LOCATED PRIOR TO THE PROJECT LIMITS ON ALL APPROACHES (i.e. THE W20-1 SERIES (ROAD WORK XX FT) SIGNS), AND USUALLY REMAIN FOR THE DURATION OF THE PROJECT. ADDITIONAL SIGNS (i.e. "RIGHT LANE CLOSED 1 MILE" AND "LEFT LANE CLOSED 1 MILE") HAVE BEEN SHOWN IN SOME FIGURES AS EXAMPLES OF REINFORCEMENT SIGN PLACEMENT BUT ARE USED IN RARE OCCASIONS.

THE FIRST AND SECOND WARNING SIGNS ABOVE ARE REFERRED TO AS THE OPERATIONAL (DAY-TO-DAY) WORK ZONE SIGNS AND MAY BE MOVED DEPENDING ON WHERE THE SPECIFIC ROADWAY WORK FOR THAT DAY IS LOCATED.

R2-10a SIGNS SHALL BE PLACED BETWEEN THE SECOND AND THIRD SIGNS AS DESCRIBED ABOVE.

R2-10a, R2-10e, AND W20-1 SERIES SIGNS ARE TO BE INCLUDED ON ALL DETAILS/TYPICAL SETUPS.

Based on: Table 6C-1 MUTCD LATEST EDITION

STOPPING SIGHT DISTANCE AS A FUNCTION OF SPEED

SPEED* (km/h)	DISTANCE (m)
30	35
40	50
50	65
60	85
70	105
80	130
90	160
100	185
110	220
120	250

SPEED* (mph)	DISTANCE (ft)
20	115
25	155
30	200
35	250
40	305
45	360
50	425
55	495
60	570
65	645
70	730
75	820

*POSTED SPEED, OFF-PEAK 85TH-PERCENTILE SPEED PRIOR TO WORK STARTING, OR THE ANTICIPATED OPERATING SPEED

THESE VALUES MAY BE USED TO DETERMINE THE LENGTH OF LONGITUDINAL BUFFER SPACES.

THE DISTANCES IN THE ABOVE CHART REPRESENT THE MINIMAL VALUES FOR BUFFER SPACING.

Source: Table 6C-2 MUTCD LATEST EDITION

THE IDEAL CAPACITY OF A MAJOR HIGHWAY IS GENERALLY CONSIDERED TO BE 1900 PASSENGER CARS PER HOUR PER LANE (PCPHPL). IN WORK ZONES ON A MULTI-LANE DIVIDED HIGHWAY, THE FOLLOWING VOLUME GUIDELINES HAVE BEEN SUGGESTED:

MEASURED AVERAGE WORK ZONE CAPACITIES

NUMBER OF LANES		NUMBER OF STUDIES	AVERAGE CAPACITY	
NORMAL (EXISTING)	OPEN (TO TRAFFIC)		VPH	VPHPL
3	1	7	1,170	1,170
2	1	8	1,340	1,340
5	2	8	2,740	1,370
4	2	4	2,960	1,480
3	2	9	2,980	1,490
4	3	4	4,560	1,520

Source: Dudek, C., Notes on Work Zone Capacity and Level of Service. Texas Transportation Institute, Texas A&M University, College Station, Texas (1984)

BY OBTAINING HOURLY TRAFFIC COUNTS FOR A PARTICULAR ROADWAY (WITH A MINIMUM OF A 48-HOUR AUTOMATIC TRAFFIC RECORDER (ATR) COUNT), THIS WILL HELP TO DETERMINE AT WHAT TIMES OF THE DAY OR NIGHT A CERTAIN NUMBER OF LANES MAY BE CLOSED.

CONVENTIONAL ROADWAY- A STREET OR HIGHWAY OTHER THAN A LOW-VOLUME ROAD, EXPRESSWAY, OR FREEWAY.

EXPRESSWAY- A DIVIDED HIGHWAY WITH PARTIAL CONTROL OF ACCESS.

FREEWAY- A DIVIDED HIGHWAY WITH FULL CONTROL OF ACCESS.

LOW-VOLUME ROAD- A FACILITY LYING OUTSIDE OF BUILT-UP AREAS OF CITIES, TOWNS, AND COMMUNITIES, AND IT SHALL HAVE A TRAFFIC VOLUME OF LESS THAN 400 AADT. IT SHALL NOT BE A FREEWAY, EXPRESSWAY, INTERCHANGE RAMP, FREEWAY SERVICE ROAD OR A ROAD ON A DESIGNATED STATE HIGHWAY SYSTEM.

Source: MUTCD LATEST EDITION

TAPER LENGTH CRITERIA FOR TEMPORARY TRAFFIC CONTROL ZONES

TYPE OF TAPER	TAPER LENGTH (L)*
MERGING TAPER	AT LEAST L
SHIFTING TAPER	AT LEAST 0.5L
SHOULDER TAPER	AT LEAST 0.33L
ONE-LANE, TWO-WAY TRAFFIC TAPER	50 FT MIN.(15 m) 100 FT(30 m) MAX.
DOWNSTREAM TAPER	50 FT MIN.(15 m) 100 FT MAX.(30 m) PER LANE

Source: Table 6C-3 MUTCD LATEST EDITION

FORMULAS FOR DETERMINING TAPER LENGTHS

SPEED LIMIT (S)	TAPER LENGTH (L) FEET
40 MPH OR LESS	$L = \frac{WS^2}{60}$
45 MPH OR MORE	$L = WS$

SPEED LIMIT (S)	TAPER LENGTH (L) Meters
60 KM/H OR LESS	$L = \frac{WS^2}{155}$
70 KM/H OR MORE	$L = \frac{WS}{1.6}$

WHERE: L = TAPER LENGTH IN FEET (METERS)

W = WIDTH OF OFFSET IN FEET (METERS)

S = POSTED SPEED LIMIT, OR OFF-PEAK 85TH-PERCENTILE SPEED PRIOR TO WORK STARTING, OR THE ANTICAPATED OPERATING SPEED IN MPH (KM/H)

Source: Table 6C-4 MUTCD LATEST EDITION

CLIENT:

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MIDDLETON, MA 01949
PHONE: 978-777-0407

PROJECT:

MAPLE STREET (ROUTE 62)
COMPLETE STREETS PROJECT

MIDDLETON, MA

PREPARED BY:

WORLDTECH ENGINEERING
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No. 50899
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PROFESSIONAL CIVIL ENGINEER FOR WORLDTECH ENGINEERING, LLC

NO.	DATE	REVISION

SCALE:	NONE
DATE:	MAY 2019
WTE PROJ. NO:	18-013.01
DESIGNED BY:	KMC
CHECKED BY:	TFQ

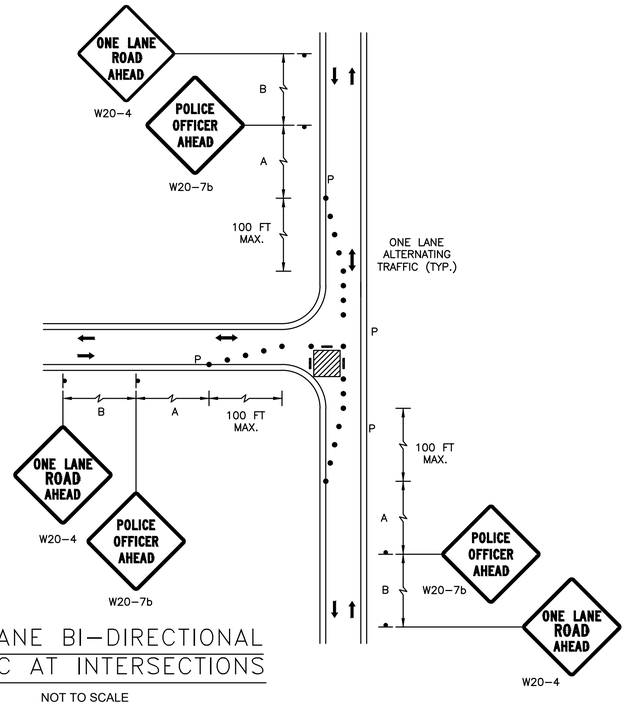
DRAWING TITLE:

TEMPORARY TRAFFIC CONTROL PLANS

SHEET NO.

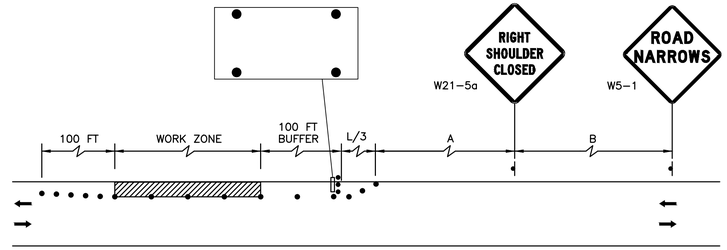
9 OF 14

Filename: J:\Middleton\18-013.01 Middleton - Maple Street Complete Street Design\ACAD\18-013.01\Project Drawing Data\Plan Sheet Files\Plan Sheet DWG\18-013.01_HD(TTCP).dwg



ONE LANE BI-DIRECTIONAL TRAFFIC AT INTERSECTIONS

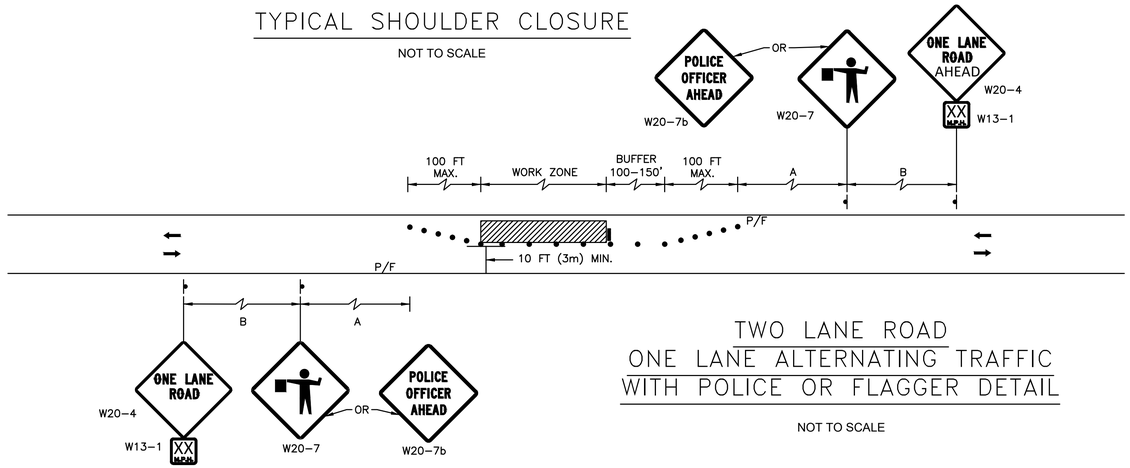
NOT TO SCALE



DRUM SPACING DEPENDENT ON SPEED. SEE TEMPORARY TRAFFIC CONTROL NOTES ON SHEET 9

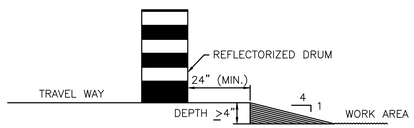
TYPICAL SHOULDER CLOSURE

NOT TO SCALE



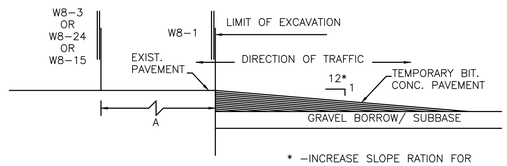
TWO LANE ROAD ONE LANE ALTERNATING TRAFFIC WITH POLICE OR FLAGGER DETAIL

NOT TO SCALE



LATERAL DROP-OFF DETAIL

NOT TO SCALE



LONGITUDINAL DROP-OFF DETAIL

NOT TO SCALE

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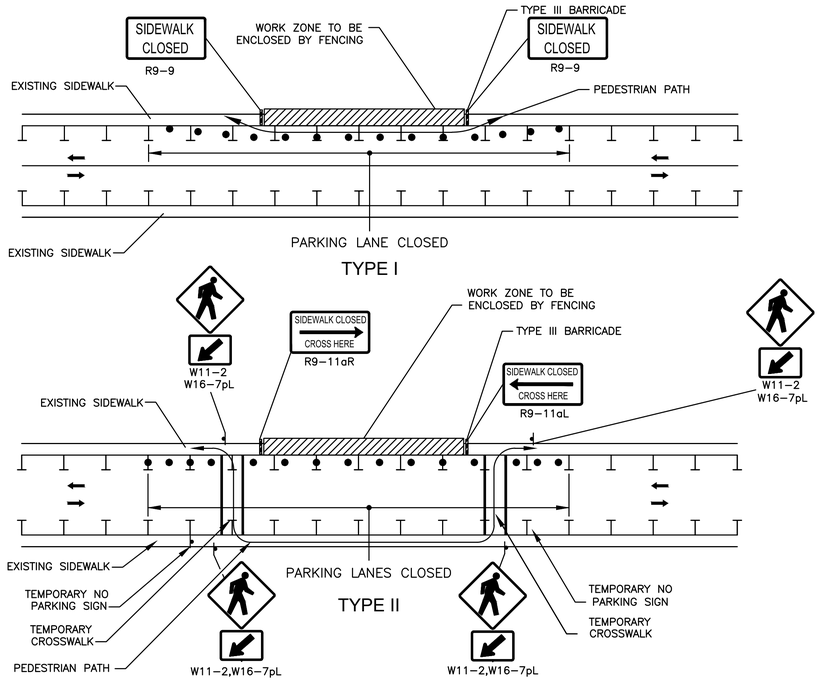
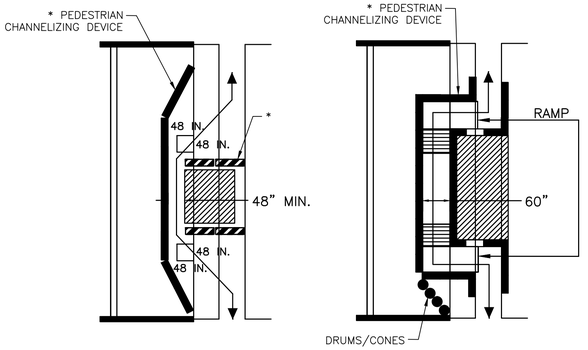


NOTES

1. ADDITIONAL ADVANCE WARNING MAY BE NECESSARY.
2. CONTROLS ONLY FOR PEDESTRIAN TRAFFIC ARE SHOWN. VEHICULAR TRAFFIC SHOULD BE HANDLED AS SHOWN ELSEWHERE.
3. STREET LIGHTING SHOULD BE CONSIDERED WHEN LOCATING CONTROL DEVICES.
4. IF THE WORK ZONE DOES NOT PERMIT PEDESTRIANS TO TRAVEL ADJACENT TO IT AS SHOWN IN PEDESTRIAN BYPASS TYPE I, TEMPORARY CROSSWALKS WITH APPROPRIATE SIGNS SHOULD BE INSTALLED TO CROSS PEDESTRIANS TO THE OPPOSITE SIDE OF THE STREET AS SHOWN IN PEDESTRIAN BYPASS TYPE II, AND AS DIRECTED BY THE ENGINEER. TEMPORARY CURB RAMPS WILL BE REQUIRED AT ALL TEMPORARY CROSSWALK LOCATIONS.
5. BYPASS IS TO BE USED IN CONJUCTION WITH THE PROPOSED LANE CLOSURE DETAILS AND DURING CONSTRUCTION STAGING, AS DIRECTED BY THE ENGINEER.
6. THE TEMPORARY SIDEWALK SHOULD BE A MINIMUM OF 4 FEET WIDE. IF THIS WALKWAY EXCEEDS 200 FEET THEN A 5 FOOT X 5 FOOT PASSING ZONE. (FOR SHORT TERM SETUPS < 10 HOURS, THIS CONDITION MAY BE WAIVED. A NOTE WOULD NEED TO BE INCLUDED IN THE TTCP THAT STATES HOW THE CONTRACTOR SHOULD ADDRESS THIS ISSUE.)

PEDESTRIAN BYPASS

NOT TO SCALE



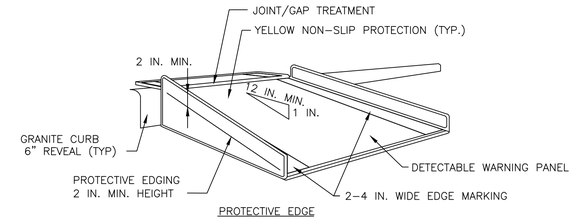
- When existing pedestrian facilities are disrupted, closed, or relocated in a TTC zone, temporary facilities shall be provided and they shall be detectable and include accessibility features consistent with the features present in the existing pedestrian facility.
- A pedestrian channelizing device that is detectable by a person with a visual disability traveling with the aid of a long cane shall be placed across the full width of the closed sidewalk.
- When used, temporary ramps shall comply with Americans with Disabilities Act (see Figures Ped–1 & Ped–2).
- The alternate pathway should have a smooth continuous hard surface for the entire length of the temporary pedestrian facility.
- The protective requirements of a TTC situation have priority in determining the need for temporary traffic barriers and their use in this situation should be based on engineering judgment.
- Audible information devices should be considered where midblock closings and changed crosswalk areas cause inadequate communication to be provided to pedestrians who have visual disabilities.

AUDIBLE DEVICES

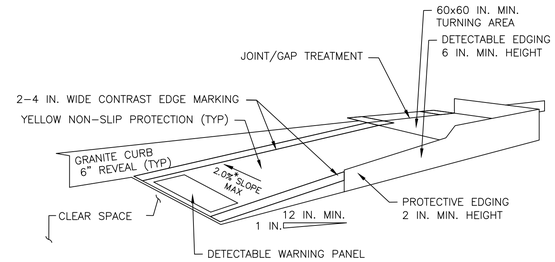
For long term sidewalk closures (at a minimum overnight) a form of speech messaging for pedestrians with visual disabilities shall be provided. Audible information devices such as detectable barriers or barricades and other passive pedestrian activation (motion activated) devices should be considered for these cases. These audible devices can be mountable or stand alone.

PEDESTRIAN CHANNELIZING DEVICE

NOT TO SCALE



TEMPORARY CURB RAMP-PERPENDICULAR TO CURB



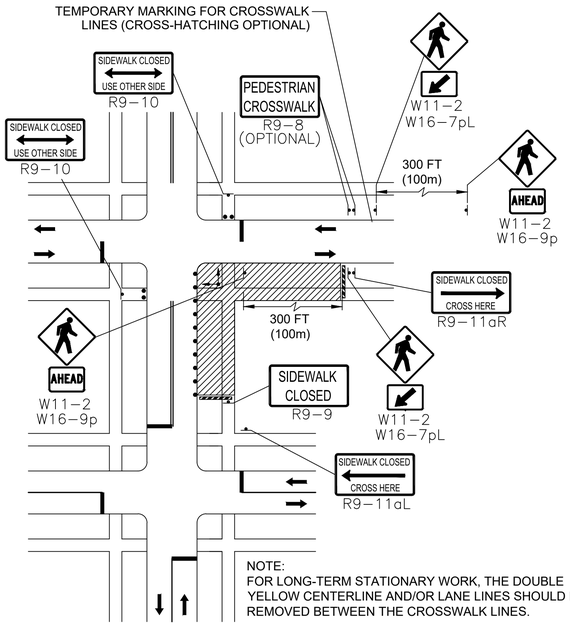
TEMPORARY CURB RAMP-PARALLEL TO CURB

TEMPORARY CURB RAMP

NOT TO SCALE

NOTES:

1. CURB RAMPS SHALL BE 60 IN. MINIMUM WIDTH WITH A FIRM, STABLE AND NON–SLIP SURFACE.
2. PROTECTIVE EDGING WITH A 2 IN. MINIMUM HEIGHT SHALL BE INSTALLED WHEN THE CURB RAMP OR LANDING PLATFORM HAS A VERTICAL DROP OF 6 IN. OR GREATER OR HAS A SIDE APRON SLOP STEEPER THAN 1:3 (33%). PROTECTIVE EDGING SHOULD BE CONSIDERED WHEN THE CURB RAMPS OR LANDING PLATFORMS HAVE A VERTICAL DROP OF 3 IN. OR MORE.
3. DETECTABLE EDGING WITH 6 IN. MINIMUM HEIGHT AND CONTRASTING COLOR SHALL BE INSTALLED ON ALL CURB RAMP LANDINGS WHERE THE WALKWAY CHANGES DIRECTION (TURNS).
4. THE CURB RAMP WALKWAY AND LANDING AREA SURFACE SHALL BE OF A SOLID CONTINUOUS CONTRASTING COLOR ABUTTING UP TO THE EXISTING SIDEWALK.
5. CURB RAMPS AND LANDINGS SHOULD HAVE A 1:50 (2%) MAX CROSS–SLOPE.
6. CLEAR SPACE OF 48x48 IN. MINIMUM SHALL BE PROVIDED ABOVE AND BELOW THE CURB RAMP.
7. WATER FLOW IN THE GUTTER SYSTEM SHALL HAVE MINIMAL RESTRICTION.
8. LATERAL JOINTS OR GAPS BETWEEN SURFACES SHALL BE LESS THAN 0.5 IN. WIDTH.
9. CHANGES BETWEEN SURFACE HEIGHTS SHOULD NOT EXCEED 0.5 IN. LATERAL EDGES SHOULD BE VERTICAL UP TO 0.25 IN. HIGH, AND BEVELED AT 1:2 BETWEEN 0.25 IN. AND 0.5 IN. HEIGHT.
10. IF A TEMPORARY PEDESTRIAN RAMP LEADS TO A CROSSWALK, THEN A DETECTABLE WARNING PAD MUST BE ADHERED TO THE BASE OF THE RAMP. IF IT LEADS TO A PROTECTED PEDESTRIAN BYPASS THAT DOES NOT CONFLICT WITH VEHICULAR TRAFFIC, THEN A PAD THEN A PAD SHALL NOT BE INSTALLED ON THE RAMP.



NOTE:
FOR LONG-TERM STATIONARY WORK, THE DOUBLE YELLOW CENTERLINE AND/OR LANE LINES SHOULD BE REMOVED BETWEEN THE CROSSWALK LINES.

PEDESTRIAN DETOUR

NOT TO SCALE

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DRAWING TITLE:
TEMPORARY TRAFFIC CONTROL PLANS

SHEET NO.
11 OF 14

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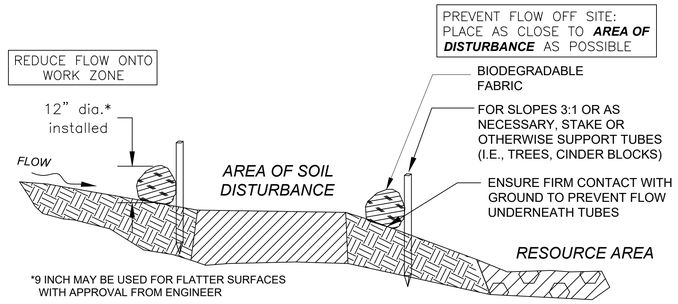
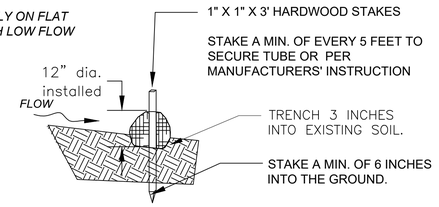
COMPOST FILTER TUBE

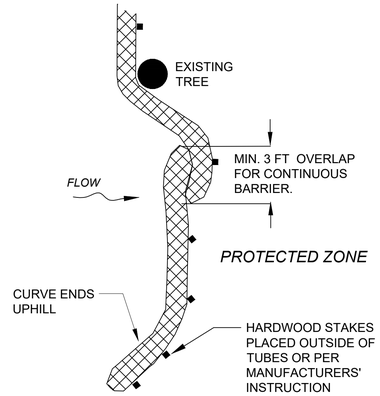

PREVENT FLOW OFF SITE: PLACE AS CLOSE TO AREA OF DISTURBANCE AS POSSIBLE
REDUCE FLOW ONTO WORK ZONE
BIODEGRADABLE FABRIC
12" dia.* installed
FOR SLOPES 3:1 OR AS NECESSARY, STAKE OR OTHERWISE SUPPORT TUBES (I.E., TREES, CINDER BLOCKS)
FLOW
AREA OF SOIL DISTURBANCE
ENSURE FIRM CONTACT WITH GROUND TO PREVENT FLOW UNDERNEATH TUBES
RESOURCE AREA
*9 INCH MAY BE USED FOR FLATTER SURFACES WITH APPROVAL FROM ENGINEER

12 INCH STRAW WATTLE

TO BE USED ONLY ON FLAT SURFACES WITH LOW FLOW


1" X 1" X 3' HARDWOOD STAKES
STAKE A MIN. OF EVERY 5 FEET TO SECURE TUBE OR PER MANUFACTURERS' INSTRUCTION
12" dia. installed
FLOW
TRENCH 3 INCHES INTO EXISTING SOIL.
STAKE A MIN. OF 6 INCHES INTO THE GROUND.

SECTION

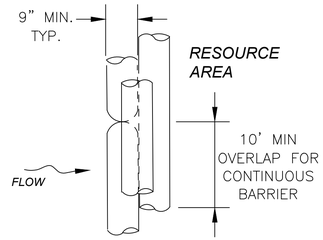

EXISTING TREE
FLOW
MIN. 3 FT OVERLAP FOR CONTINUOUS BARRIER.
PROTECTED ZONE
CURVE ENDS UPHILL
HARDWOOD STAKES PLACED OUTSIDE OF TUBES OR PER MANUFACTURERS' INSTRUCTION

PLACE TUBE ALONG CONTOURS AND PERPENDICULAR TO FLOW.

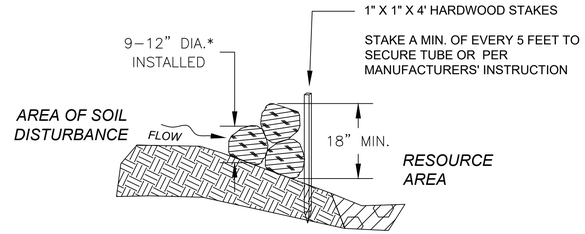
ADJUST LOCATION AS REQUIRED FOR OPTIMUM EFFECTIVENESS. DO NOT INSTALL IN WATERWAYS.

PLACE STAKES AS NEEDED TO SECURE TUBES IN PLACE.

PLAN VIEW



PLAN VIEW


1" X 1" X 4' HARDWOOD STAKES
STAKE A MIN. OF EVERY 5 FEET TO SECURE TUBE OR PER MANUFACTURERS' INSTRUCTION
9–12" DIA.* INSTALLED
AREA OF SOIL DISTURBANCE
FLOW
18" MIN.
RESOURCE AREA

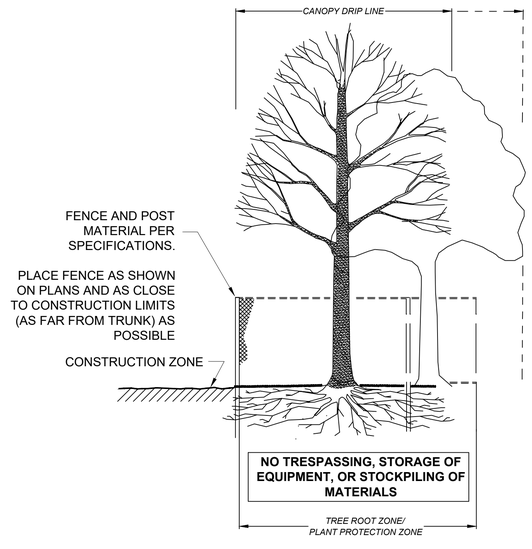
SECTION

COMPOST FILTER TUBE BERM (SLOPES 2:1 OR STEEPER)

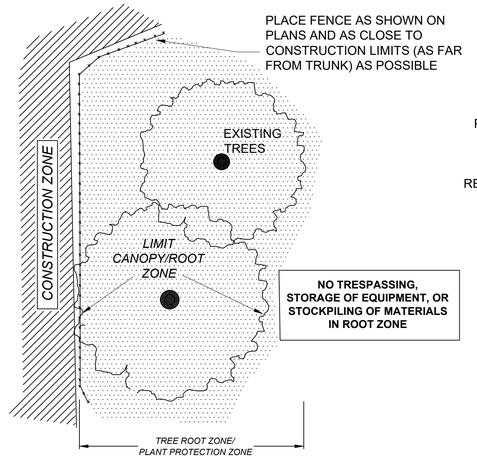
N.T.S.

SEDIMENT CONTROL BARRIER

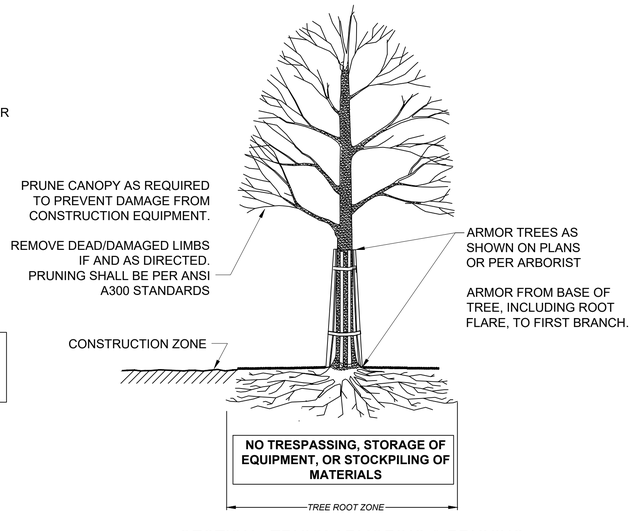
N.T.S.


CANOPY DRIP LINE
FENCE AND POST MATERIAL PER SPECIFICATIONS.
PLACE FENCE AS SHOWN ON PLANS AND AS CLOSE TO CONSTRUCTION LIMITS (AS FAR FROM TRUNK) AS POSSIBLE
CONSTRUCTION ZONE
NO TRESPASSING, STORAGE OF EQUIPMENT, OR STOCKPILING OF MATERIALS
TREE ROOT ZONE/ PLANT PROTECTION ZONE

SECTION - FENCE PROTECTION OF ROOT ZONE


PLACE FENCE AS SHOWN ON PLANS AND AS CLOSE TO CONSTRUCTION LIMITS (AS FAR FROM TRUNK) AS POSSIBLE
CONSTRUCTION ZONE
EXISTING TREES
LIMIT CANOPY/ROOT ZONE
NO TRESPASSING, STORAGE OF EQUIPMENT, OR STOCKPILING OF MATERIALS IN ROOT ZONE
TREE ROOT ZONE/ PLANT PROTECTION ZONE

PLAN VIEW - FENCE PROTECTION OF ROOT ZONE


PRUNE CANOPY AS REQUIRED TO PREVENT DAMAGE FROM CONSTRUCTION EQUIPMENT.
REMOVE DEAD/DAMAGED LIMBS IF AND AS DIRECTED. PRUNING SHALL BE PER ANSI A300 STANDARDS
ARMOR TREES AS SHOWN ON PLANS OR PER ARBORIST
ARMOR FROM BASE OF TREE, INCLUDING ROOT FLARE, TO FIRST BRANCH.
CONSTRUCTION ZONE
NO TRESPASSING, STORAGE OF EQUIPMENT, OR STOCKPILING OF MATERIALS
TREE ROOT ZONE

SECTION - TRUNK ARMORING & PRUNING

TREE PROTECTION DETAIL

N.T.S.

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COMMONWEALTH OF MASSACHUSETTS — THOMAS F. QUINLAN — CIVIL — No. 50899 — REGISTERED PROFESSIONAL ENGINEER

PROFESSIONAL CIVIL ENGINEER FOR WORLDTECH ENGINEERING, LLC

NO.	DATE	REVISION

SCALE:	NONE
DATE:	MAY 2019
WTE PROJ. NO:	18–013.01
DESIGNED BY:	KMC
CHECKED BY:	TFQ

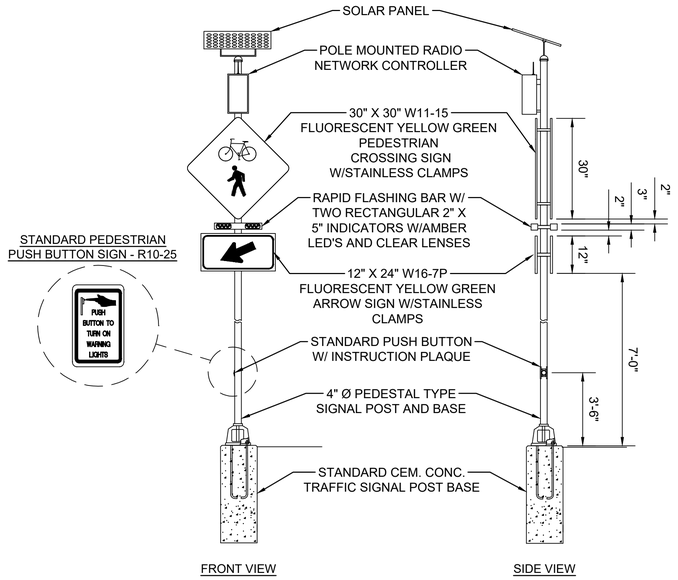
DRAWING TITLE:

CONSTRUCTION DETAILS

SHEET NO.

12 OF 14

Filename: J:\Middleton\18–013.01 Middleton – Maple Street Complete Street Design\ACAD\18–013.01\Project Drawing Data\Plan Sheet Files\Plan Sheet DWG\18–013.01_HD(Construction Details).dwg


SOLAR PANEL
POLE MOUNTED RADIO NETWORK CONTROLLER
30" X 30" W11-15 FLUORESCENT YELLOW GREEN PEDESTRIAN CROSSING SIGN W/STAINLESS CLAMPS
RAPID FLASHING BAR W/ TWO RECTANGULAR 2" X 5" INDICATORS W/AMBER LED'S AND CLEAR LENSES
STANDARD PEDESTRIAN PUSH BUTTON SIGN - R10-25
PUSH BUTTON TO TURN ON WARNING LIGHTS
12" X 24" W16-7P FLUORESCENT YELLOW GREEN ARROW SIGN W/STAINLESS CLAMPS
STANDARD PUSH BUTTON W/ INSTRUCTION PLAQUE
4" Ø PEDESTAL TYPE SIGNAL POST AND BASE
STANDARD CEM. CONC. TRAFFIC SIGNAL POST BASE
30"
2"
3"
2"
12"
7'-0"
3'-6"
FRONT VIEW
SIDE VIEW

RECTANGULAR RAPID FLASHING BEACON

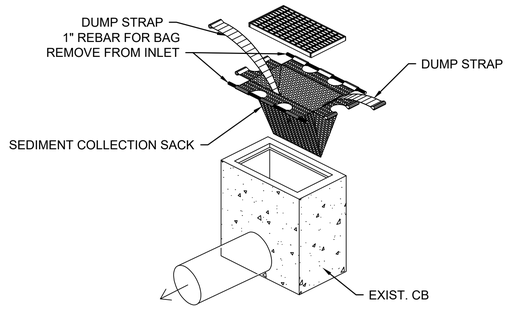
N.T.S.

RRFB NOTES:

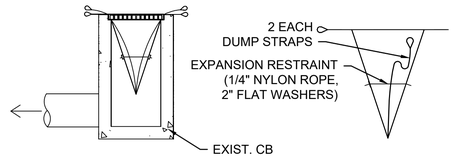
1. RECTANGULAR RAPID FLASHING BEACON (RRFB) SHALL BE SUPPLIED FROM A MANUFACTURER LISTED ON THE MASSDOT APPROVED EQUIPMENT LIST.
2. EACH LOCATION SHALL HAVE TWO (2) RRFB INSTALLED (ONE ON EACH SIDE OF THE CROSSWALK).
3. R10-25 SIGNS SHALL BE INSTALLED ABOVE ALL PEDESTRIAN PUSH BUTTONS.
4. OPERABLE CONTROLS ON RRFB SHALL BE LOCATED PER ADA STANDARDS 305-309.
5. WARNING SIGNS AND INSTRUCTIONAL SIGNS ARE PAID SEPARATELY UNDER ITEM 832.

RRFB CLEARANCE TIME

APPROACH	LENGTH (ft)	CLEARANCE (s)
LOCATION 1	36	13



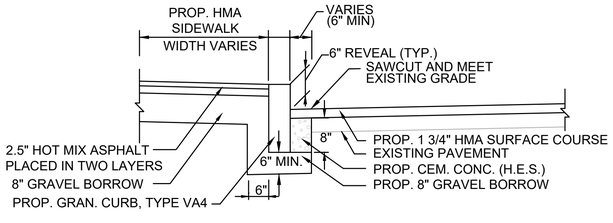
INSTALLATION DETAIL



BAG DETAIL

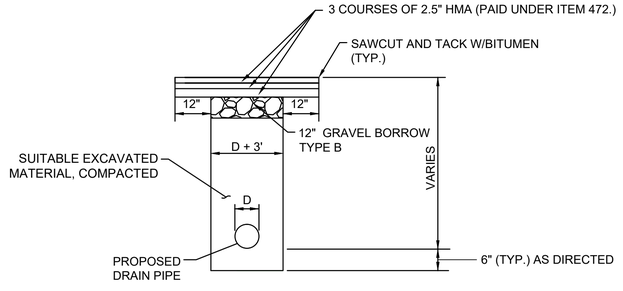
SILT SACK DETAIL (ITEM 697.1)

N.T.S.



GRANITE CURB INSTALLATION

N.T.S.



PERMANENT TRENCH PATCH FOR DRAINAGE PIPE (WITHIN ROADWAY) DETAIL

N.T.S.

CLIENT:	TOWN OF MIDDLETON DEPARTMENT OF PUBLIC WORKS 195 NORTH MAIN STREET MIDDLETON, MA 01949 PHONE: 978-777-0407
PROJECT:	MAPLE STREET (ROUTE 62) COMPLETE STREETS PROJECT MIDDLETON, MA
PREPARED BY:	WORLDTECH ENGINEERING 300 TRADECENTER, SUITE 5580 WOBURN, MA 01801 T: 781-933-4800 F: 781-933-4801
	COMMONWEALTH OF MASSACHUSETTS THOMAS F. QUINLAN CIVIL No. 50899 REGISTERED PROFESSIONAL ENGINEER PROFESSIONAL CIVIL ENGINEER FOR WORLDTECH ENGINEERING, LLC

NO.	DATE	REVISION

SCALE:	NONE
DATE:	MAY 2019
WTE PROJ. NO:	18-013.01
DESIGNED BY:	KMC
CHECKED BY:	TFQ

DRAWING TITLE: CONSTRUCTION DETAILS

SHEET NO. 13 OF 14

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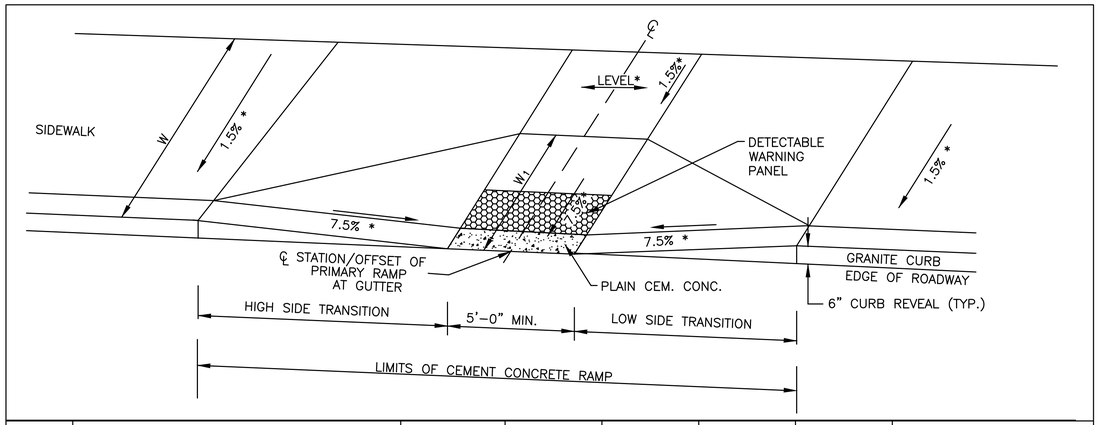
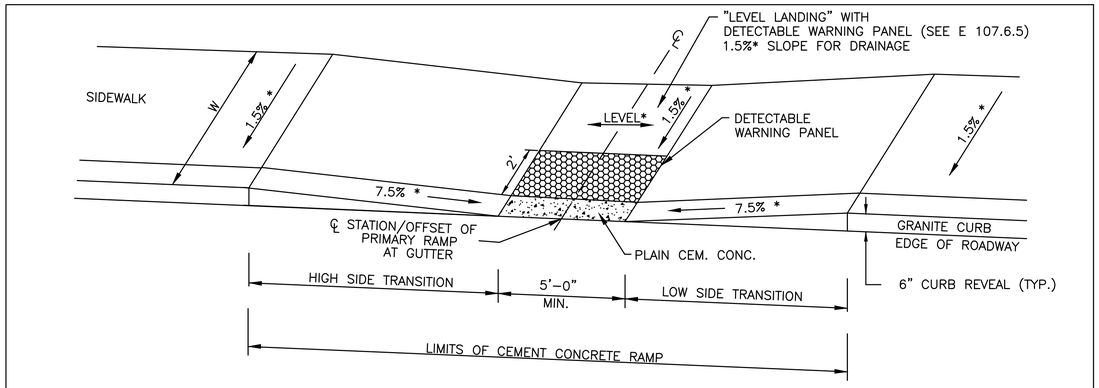


WCR #	RAMP REFERENCE POINT			WIDTH OF SIDEWALK (W)	LENGTH OF PRIMARY RAMP (W1)	DEPTH OF LEVEL LANDING	RAMP OPENING WIDTH	ROADWAY GUTTER SLOPE	TRANSITION LENGTH	
	BASELINE	STATION	OFFSET						HIGH SIDE	LOW SIDE
1	MAPLE	54+07.25	12.82' LT	8'–6"	4'–6"	4'–0"	5'–0"	5.3%	15'–0"	6'–6"
2	LIBERTY	1+30.31	24.92' LT	8'–6"	4'–6"	4'–0"	5'–0"	0.5%	7'–8"	6'–6"

WHEELCHAIR RAMP ON WIDE SIDEWALK

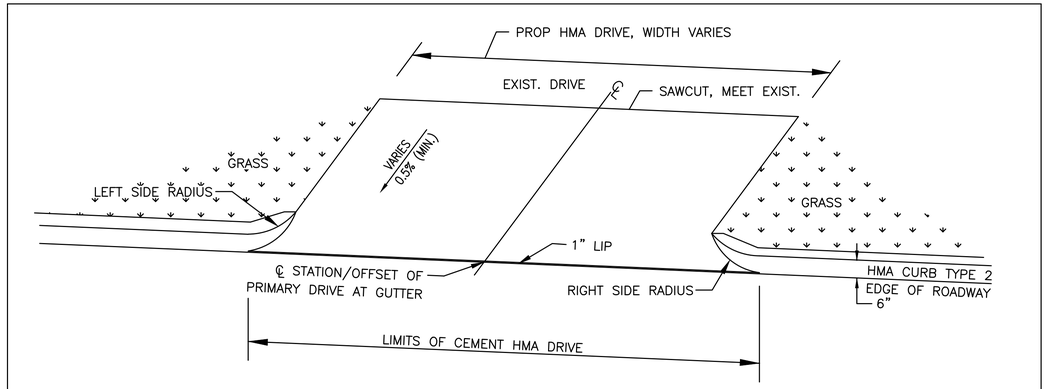


WCR #	RAMP REFERENCE POINT			WIDTH OF SIDEWALK (W)	DEPTH OF LEVEL LANDING	RAMP OPENING WIDTH	ROADWAY GUTTER SLOPE	TRANSITION LENGTH	
	BASELINE	STATION	OFFSET					HIGH SIDE	LOW SIDE
3	LIBERTY	1+28.44	25.85' RT	5'–6"	5'–6"	5'–0"	5.3%	15'–0"	6'–6"
4	MAPLE	54+18.46	22.00' RT	5'–6"	5'–6"	5'–0"	0.5%	7'–8"	6'–6"

WHEELCHAIR RAMP ON NARROW SIDEWALK

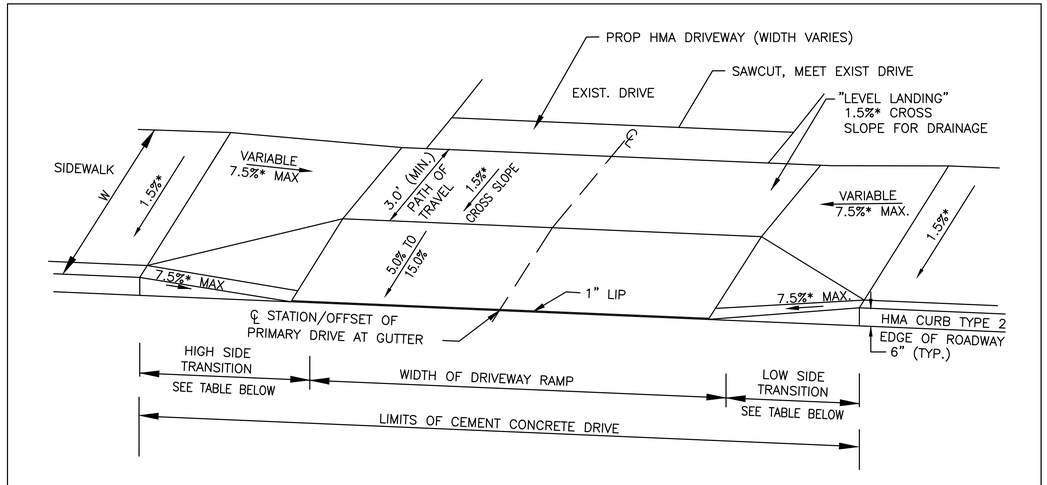
NOTES:
* CONSTRUCTION TOLERANCE ±0.5%.

DETECTABLE WARNING PANELS SHALL BE INCLUDED ON ALL PROPOSED WHEELCHAIR RAMPS AS SHOWN IN THE MOST RECENT MASSDOT CONSTRUCTION STANDARD DETAILS.



DW #	RAMP REFERENCE POINT			WIDTH OF SIDEWALK (W)	WIDTH OF DRIVEWAY RAMP	PATH OF TRAVEL	ROADWAY GUTTER SLOPE	CURB RADIUS	
	BASELINE	STATION	OFFSET					RIGHT SIDE	LEFT SIDE
1	MAPLE	51+64.27	16.10' RT	N/A	25'–10"	N/A	2.0%	5'–0"	5'–0"
2	LIBERTY	1+54.91	16.62' RT	N/A	30'–0"	N/A	3.8%	10'–0"	5'–0"

HOT MIX ASPHALT DRIVEWAYS



WCR #	RAMP REFERENCE POINT			WIDTH OF SIDEWALK (W)	PATH OF TRAVEL	ROADWAY GUTTER SLOPE	TRANSITION LENGTH	
	BASELINE	STATION	OFFSET				HIGH SIDE	LOW SIDE
3	MAPLE	56+17.91	13.88' LT	5'–6"	3'–0"	1.8%	9'–0"	6'–6"

HOT MIX ASPHALT SIDEWALK AT DRIVEWAYS

CLIENT:
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DEPARTMENT OF PUBLIC WORKS
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MIDDLETON, MA 01949
PHONE: 978-777-0407

PROJECT:
MAPLE STREET (ROUTE 62)
COMPLETE STREETS PROJECT
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PROFESSIONAL CIVIL ENGINEER FOR WORLDTECH ENGINEERING, LLC

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SCALE:	NONE
DATE:	MAY 2019
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CHECKED BY:	TFQ

DRAWING TITLE:
WHEELCHAIR RAMP AND DRIVEWAY SCHEDULE

SHEET NO.
14 OF 14

Filename: J:\Middleton\18–013.01 Middleton – Maple Street Complete Street Design\ACAD\18–013.01\Project Drawing Data\Plan Sheet Files\Plan Sheet DWG\18–013.01_HD(Wheelchair Ramp Details).dwg